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HEALTH CARE FOR ALL

UNICEF NEWS

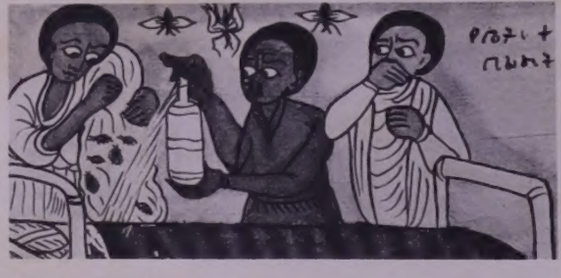
Editor: Miriam Miller
Design: Bernard P. Wolff

Love is not Enough. Less than 15 per cent of the rural population in developing countries have access to even the most minimal health services. Some of the reasons why past efforts have failed and why some innovative new approaches are succeeding are examined in this article. (Page 3)

"Barefoot Doctors" cover China's Countryside. What is the "barefoot doctor" system and why is it succeeding in bringing health services to all the people? *Dr. Han Suyin,* physician, author and frequent visitor to China for the past 19 years, provides illuminating answers. (Page 7)

"You Don't Have to Send a Pigeon...." "Flying Doctors" provide a unique rural medical service in East Africa. Their story is told by *John Balcomb,* Chief, Communications and Information, and *William Cambell,* Programme Associate, in UNICEF's Nairobi office. (Page 12)

Modern Medicine Finds an Ancient Ally in India. Efforts to integrate practitioners of India's ancient Ayurvedic medicine into modern health care are described by *Jim Breetveld,* Chief, Communications and Information Services in UNICEF's New Delhi office. (Page 18)



Nine Do-it-Yourself Health Actions. Many simple, effective health techniques are known, available and suitable for even remote, poor communities, but little effort is being made to introduce them, according to *Dr. Sam Street,* the World Health Representative in Ethiopia. (Page 24)

Twin Goals in Bangladesh: Preventive Health—People's Participation. *Moncef Bouhafa,* Information Officer in UNICEF's Dacca office, describes several innovative health projects. He believes they offer great hope for speeding up basic health services in Bangladesh. (Page 26)

Cover photos: (*Top*) A village health worker in Bangladesh checks a child for signs of Vitamin A deficiency which could lead to blindness (ICEF 7217/Moncef Bouhafa). (*Centre*) A volunteer in charge of a "village pharmacy" in Senegal gives pills to a neighbour seeking relief; such volunteers deal only with common-place ailments and difficult cases are referred to health centres further away (ICEF 7133/Alastair Matheson). (*Bottom*) Clinics were built in the living centre of the Olunchun people of China. Olunchun medical workers were trained. Here a "barefoot doctor" examines an Olunchun baby. (Photo by Rewi Alley.)

Correction: The identification of the cover on the previous issue of UNICEF News was partially incorrect and incomplete. The mosaic design by Jonathan Kingdom, executed by Makerere University art students, decorates the front of the Mwanamugimu Nutrition Center in Kampaga, Uganda, and not the Ntenjeru Health Centre as previously noted. The design emphasizes the idea that "Breast is best!" and the name "Mwanamugimu" comes from a Luganda proverb, *"Mwanamugimu ava ku ngozi,"* which means "The beautiful flower comes from strong roots." (The photo ICEF 7173 was the work of Esben H. Thorning.)

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UNICEF News is published four times a year by the UNICEF Information Division, United Nations, New York. The yearly subscription rate is $6.00

United Nations Children's Fund, United Nations, New York, N.Y. 10017

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Love is not enough

low fortunate for any child—rich or poor, anywhere n the world—to have a mother's loving, tender care hen he is sick.

Unfortunately, love is not enough to cure a seriously l child. He probably needs an antibiotic drug or other herapeutic medicines or treatment.

Nor is love enough to prevent a child from getting ick. What he needs are:

- immunization against childhood diseases;
- an environment which promotes his well-being;
- a mother who knows some simple facts about the importance of hygiene and nutrition;
- and, most important of all, easy access to health services—albeit modest or even rudimentary ones—which would include periodic check-ups, preventive health care, simple curative treatment when needed, early detection of signs of diseases or malnutrition, and, when indicated, referral to a doctor or well-equipped health centre or hospital for more specialized diagnosis and treatment.

To people who have never known what it is like to live in a village in the developing world, such health services are probably considered quite elementary and easy to provide. But such an assumption would be a very false one, for the vast majority of people in the developing countries have little or no access whatsoever to even the most minimal health services.

Great scientific and technological marvels have occurred during this century, yet vast numbers of people—and especially children—are dying of preventable and curable diseases often associated with malnutrition, or survive with impaired bodies and intellects.

This is clearly seen in the striking difference in vital statistics for the developing and the developed world. For example (according to 1971 data) life expectancy at birth is 43 years in Africa and 50 in Asia compared with 71 in Europe and North America. Also, consider the tragic implications of the infant mortality figures shown below.

"Western" health models have failed

Despite efforts by governments and international organizations, less than 15 per cent of the rural population and other underprivileged groups in many developing countries have access to health services, and these are the very people who are most exposed and prone to disease. A harsh environment, severe poverty, ignorance about the causes of disease and protective measures, lack of health services or inability to seek and use them—all combine to produce this sorry situation.

To meet the main health needs of the underprivileged—who make up about 80 per cent of the population in less developed countries—health services must actively seek out people, find out what they need and want, train them in simple first-aid and educate them in health care.

Health services set up in the past in most developing countries have been too closely modelled on those of wealthier, industrialized countries. Unfortunately, the efforts have largely failed, for in most countries, health services are not reaching the vast majority of people, and especially those living in remote, disadvantaged areas.

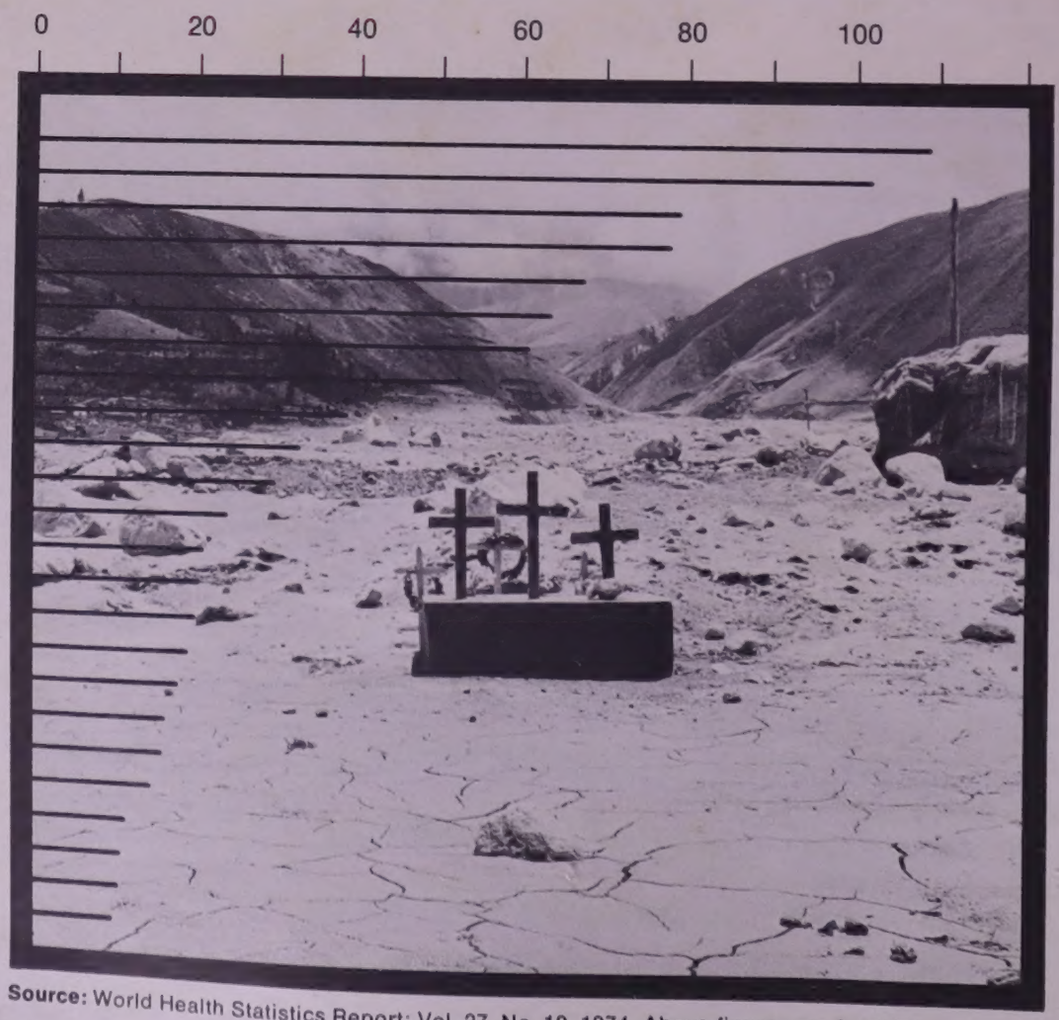
The developing world lacks sufficient resources to meet all of its health needs, and in some countries the problem is further complicated by unwise use or inadequate and inequitable distribution of the few resources that do exist.

Inadequate expenditure on health services

Scarcity of money affects all parts of the health delivery system. This shows itself first at the national level in the routine allocation of yearly budgets to the various sectors of the economy and in the distribution of funds to authorities responsible for national development plans.

One useful index of a country's financial resources is its per capita health expenditure. This figure is low in all developing countries, and lowest of all in the neediest areas. Some revealing comparisons can be found in the *Health Sector Policy Paper* published by the World Bank in March 1975 where figures are given for 54 countries.

Infant Mortality per 1,000 live births in selected countries

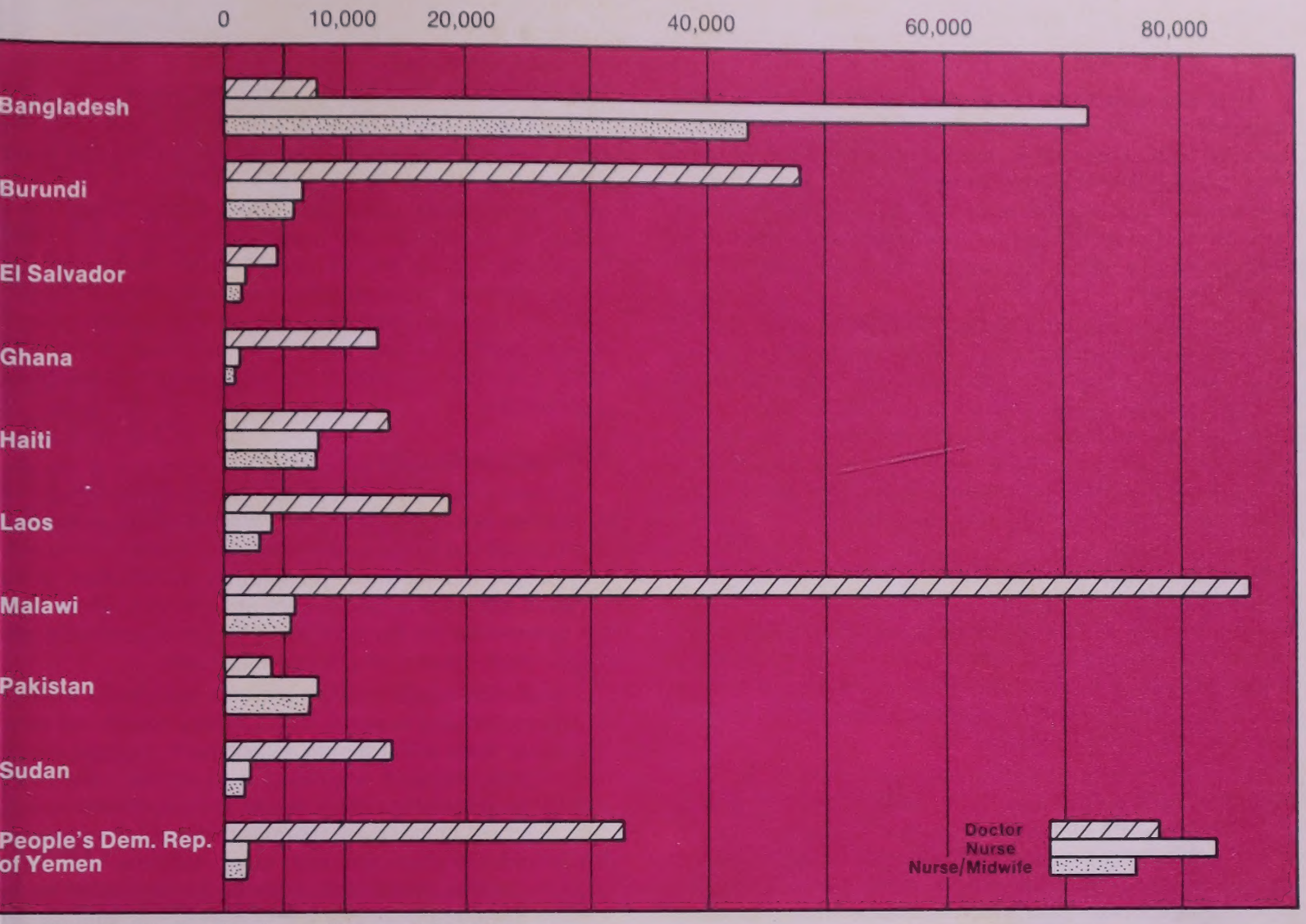


Egypt	114.0
Lesotho	111.3
Guatemala	79.0
Chile	78.0
Philippines	67.9
Mauritius	63.8
Mexico	60.9
Madagascar	53.2
Kuwait	38.5
Panama	33.7
Spain	29.9
USSR	24.7
Syr. Arab Rep.	21.7
Jordan	21.3
Belgium	20.5
Singapore	19.3
United States	18.5
England/Wales	17.2
Canada	17.1
France	16.0
Japan	11.7
Australia	11.5
Finland	11.3
Sweden	10.8

Source: World Health Statistics Report: Vol. 27, No. 10, 1974. Above figures are for 1972.

Who can get medical care when he needs it?

ome examples of the ratio of people per Doctor, Nurse and Midwife



urce: World Health Statistics Annual 1971—Published 1975

sted below are the ten lowest figures; compare them th the highest one:

Some government health expenditures per capita

Kenya	$ ~~0.14~~ 2.93
Rwanda	0.45
Malawi	0.50
Upper Volta	0.56
Ethiopia	0.67
Haiti	0.78
Brazil	0.80
Burma	0.85
India	0.91
Ecuador	1.04
	$ ~~6.70~~ 9.49
United Kingdom	$105.16

oo many services for too few people

Although a shortage of funds handicaps the entire health stem, the shortage affects the larger, needier rural pop- ation even more than it does the city dwellers. Health rvices in developing countries—like those in more devel- ed ones—are too often hospital-based, relying on rel- vely sophisticated technology, and placing emphasis on specialized medicine. As a result, an unduly large share of the nation's health budget is used to serve a comparatively very small, highly privileged clientele. In many developing countries, over half the national budget is spent on health care in urban areas, where no more than a fifth of the total population lives.

The shortage and maldistribution of human resources are equally striking. Distribution of professional personnel within developing countries is in almost inverse proportion to distribution of the population. Outside the main cities and towns, there are very few professional health personnel of any kind, and it is not uncommon for a population of 50,000 or even more to be served by only one physician. Health personnel are also poorly distributed in most of the countries where a large number of professionals are trained. (See chart above for some examples.)

Hopelessness or hope?

Is the magnitude of these problems of getting health care to all the people so great that one should be overcome by a feeling of hopelessness? In his introduction to *Health by the People,* Kenneth W. Newell, WHO Director of the Division of Strengthening of Health Services, discusses this point:

"It is very easy to throw up one's hands or to shut one's eyes [to the problem]. If one uses the most simple arithmetic to add up all that is needed to counter the worst of the evils, it would appear that there will never be enough resources. There appears to be no starting-point, no proper way to start. The step from hopelessness to hope may appear too big for us to consider in a time scale of less than a century.

"Some people say that such a conclusion is not that of a pessimist but that of a realist. Other people do not agree. Such sums and such thinking, they hold, are products of our own way of looking at the world. They ignore a whole series of factors and strengths that we cannot and should not quantify and put into an equation. They ignore what has been done and is being done in various parts of the world. A different conclusion is possible."

Innovative approaches show promise

The fact is that a number of countries have initiated some innovative and successful approaches to health care. As Kenneth Newell states: "There appear to be many roads to success. Indeed, . . . possibilities for change are open to all people, but no standard method is applicable to them all."

Far from being a single homogeneous entity, the developing world is made up of a great variety of widely differing countries and areas at different stages of development. Nevertheless, their progress is conditioned by certain factors in common, and in some cases it may be possible to consider common solutions to their problems.

In most cases where new health strategies have been tried, they have led to major shifts of emphasis in health services—from a curative to a curative-preventive approach, from urban to rural populations, from the privileged to the underprivileged and from a sectoral approach to a system of integrated services as a component of overall social and economic development.

Key to success: participation of the people

Different countries have used a variety of innovative health approaches, but two essential ingredients are common to all of them.

First is recognition of the fact that *an untapped reservoir of human resources exists,* from which a body of primary health workers can be drawn and trained more rapidly, less expensively and in far greater numbers than doctors or nurses can be trained. It is particularly important to use the people for primary health care in rural areas. Full-time or part-time primary health workers can be recruited from among the villagers and can be trained in or near their own villages so that they truly belong to the people they serve.

The second ingredient is *community involvement* which means that the population participates in decision-making about its health services. Active participation will guarantee that a community will be motivated to accept and *use* the services and will feed information about its felt needs and aspirations back to the decision-makers.

Most health care delivery systems so far have failed because they have not made care accessible and acceptable to the people who need it most. Primary health care *must* be available close to people's homes. Also, the acceptance of many health measures necessitates a change in people's living habits, so the community itself must understand the needs, decide on the appropriate measures, help in carrying them out, and evaluate their success. Basic health care can be given by ordinary people if they have adequate education, training, technical advice and supervision.

Partners in health

A clearly defined relationship must be established between the two components of frontline health care—activities carried out by the government and those carried out by the people themselves. The relative contribution of each of these partners to health care activity as a whole should be determined by the political and socio-economic situation in each country or geographical area.

Nationwide health service systems need to be mobilized to strengthen and support local primary health workers by providing them with training, supervision, referral facilities and logistic support, including a simplified health technology appropriate to their needs. Primary health services function best in close co-operation with other segments of the health services and with other services that have a bearing on the health status of the people, such as education, agriculture, public works and social welfare.

□ □ □

This issue of UNICEF NEWS is dedicated to the goal of health care for all and offers some examples of innovative approaches that are helping to meet this goal. These and other innovations and successes are sufficiently promising to warrant a major change in policy and direction enabling such programmes to be fostered, extended, adapted and used as examples for a large-scale global programme.

To help achieve such far-reaching changes, UNICEF and WHO are determined to overcome inertia, opposition and despair. The goal of providing health care to *all* mothers and children is a realistic one that can be met at a cost the world can afford.

Love is *not* enough to keep children alive and healthy, but it provides a strong incentive to everyone who cares about the well-being of the world's children and who wants to participate in the task of helping to provide health care for all of them.

The information contained in this introductory article is drawn largely from the recently published joint UNICEF/WHO study, "Alternative Approaches to Meeting Basic Health Needs in Developing Countries". Inquiries about obtaining copies of this pamphlet (116 pp.) in English, French and Spanish should be directed to UNICEF, Geneva.

"BAREFOOT DOCTORS" COVER CHINA'S COUNTRYSIDE

Han Suyin

"Barefoot doctor" Wany Kuei-chen, with a first-aid kit, treats a woman peasant at the Takou Production Brigade of Chiangchan Commune County near Shanghai. Trained as a "barefoot doctor" since 1965, she continues her regular farm work but also serves the brigade's members. She can now diagnose and treat common and recurrent diseases. (Photo by Rewi Alley)

In Tibet, which I visited recently, there were 6,400 "barefoot doctors" for 1.6 million people, and Dr. Choke told me, "we plan to have 6 to 7 per 1,000 of the population involved in some sort of health work". A Tibetan woman of 34 years and vice-chairman of the health department for the autonomous region of Tibet, Dr. Choke also noted that, "the more remote the region, the better the health care". Medical teams from Shanghai and Peking are in Tibet touring the communes, teaching and setting up pre-natal clinics and other services.

If proof were needed that China's "barefoot doctor" system was indeed bringing health services to all of China's people, ample evidence could be found here in Tibet, one of China's most remote regions.

During her last trip to China, Dr. Han Suyin travelled extensively throughout the country. She had an opportunity to see China's rural health services in action, and especially the work of the "barefoot doctors" in even the most remote provinces. Author, physician and authority on all facets of life in China, Dr. Han Suyin has made yearly visits to the country for the past 19 years.

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Need for drastic action

The first warning that changes in the country's rural health services were needed came from Chairman Mao about 1964 when he stressed that the best medical care and specialists of all kinds were concentrating in the cities, and that the countryside was being neglected.

Although prior to 1965, great drives for inoculations against epidemics such as smallpox, against venereal disease and schistosomiasis had taken place, the new emphasis on bringing health care to the countryside and on prevention of disease in rural areas where 85 per cent

A herdsman's child in Tibet receives a physical check-up by Kayi (extreme right), a "barefoot doctor" of Tibetan nationality. (Photo by Rewi Alley)

of the people live, started in 1965 with the introduction of the "barefoot doctor" system. Today, the entire nation is covered by a web of health and medical care, imbedded in each village, enmeshed with the political, economic and social life of the inhabitants. Perhaps the most important aspect of it is that it involves personally every woman, child and man both in the city and the countryside.

Who is the "barefoot doctor"?

Ranging in age from 17 to 30, there are 1,300,000 barefoot doctors—one for every 800 people—who form the "frontline" of health care. These young people are not sent to a village to "do time" and then go back to the cities. In the majority of cases, they come from that village or commune, selected by their own group to study at the county town hospital and to train

as barefoot doctors. They then return to serve their own community.

In other cases, they are city students sent down to "strike root" in the countryside, to become part of the group where they live and to remain there all their lives. They not only do medical work, but also labour in the fields. One often sees them hoeing or harvesting, their little box with a red cross upon it deposited by the furrow where they work, ready for any call.

Barefoot doctors are not paid by the government though they may receive a small stipend—something like 6 to 9 yuan a month (U.S. $3.05 to $4.57)—in poorer regions. They live as do other commune members on their earned workpoints, but are usually allotted more points for medical work. In the case of city implants, the government has provided them with a sum of 130 yuan (U.S. $65.99) to establish themselves and buy necessities, but afterwards they receive no more than others do.

A co-operative health system

Most of the communes have now put into practice the co-operative medical care system which began in 1970. It is the socio-economic framework in which the barefoot doctors and health workers can deploy and sustain clinics, expand and increase their store of medical equipment and drugs. The commune members each pay a small sum of 1 yuan to 1.50 yuan per year (U.S. $.51 to $.71) for medicine. The whole group is thus involved in its own health care, and meetings and discussions at regular intervals maintain its efficiency.

Preventive inoculations are free of charge; barefoot doctors circulate throughout their given area and inoculate all children and infants against such diseases as smallpox, whooping cough, tuberculosis and diptheria. If a commune member is seriously ill and beyond the barefoot doctor's ability to cure, he will bring the sick person to the commune hospital or the county hospital.

There is no charge, save for food, during the stay in the hospital (25 to 30 cents a day may be charged, but often much less; the patient's family usually brings food). Follow-up care is then given by the barefoot doctor according to hospital directives. Operations are free of charge as are all methods of family planning and contraceptives.

Importance of retraining

Barefoot doctors' manuals and textbooks are published and circulated throughout the land. In the last five years, a thorough system of retooling has been set up. After a year or two, the barefoot doctors go back for retraining (3 to 6 months) in hospitals at the county level or at certain designated points. Out of this vast pool of young people with devotion and practical experience, the selection of medical personnel of a higher level is made. The "frontline" web

At a visit to a rural village, "barefoot doctors" set up their equipment in someone's home to serve as a village dispensary. (Photo by Audrey Topping)

keeps the closest connection between the rural health situation and the medical authorities at the county, provincial and national levels. Thus any epidemic can be swiftly checked. For instance, preventive influenza medicines (herbal) are now given free in many brigades in Szechuan after a flu epidemic there two years ago.

The "mass line"

At the same time as this mobility "from below upwards" is taking place, the opposite movement "from above below" is occurring. Sixty per cent of all *city* medical personnel must, at any time, be in the countryside, touring, teaching, establishing new clinics and centres, investigating conditions and doing research "on the spot". Even in remote provinces like Tibet, medical teams from Peking or Shanghai come for 18 months to two years to teach, conduct research and train personnel.

These medical teams are "comprehensive", made up of surgeons, internists, biologists, chemists, laboratory personnel and others. Through this web of paramedical personnel, barefoot doctors and county authorities, the checkup of 14 million people for cancer was done with the total mobilization of the population. This is called "the mass line" and implies the active, spontaneous co-operation of the population.

In this way, large amounts of people can not only be checked for cancer, but also inoculated against disease in a very short time. Blood banks at county level and even at commune hospital level are also established in this manner. A vast amount of medical data and new avenues of research are thereby constantly available. The barefoot doctor is best able to supply data from his area in disease and in family planning. Family planning is thus brought to each home by the barefoot doctor and the cadres of the revolutionary committees of the commune, brigade or team. The county is the "gathering centre" responsible for reporting and checking, and county secretaries are expected to tour their county frequently.

Health, politics, economy interrelated

Health in China is a political matter dovetailed within the comprehensive programme for

"Barefoot doctors" learn about herbal medicines for use in city and commune hospitals. (Photo by Audrey Topping)

economic progress. Family planning is designed to liberate the woman, to make available her energy and productive power, and also to fit in with the economic planning of the system. "A planned economy also means family planning."

Where necessary, however, policies and priorities are adjusted to suit special conditions. In Tibet, for example, there is no family planning. The policy is to let the national minorities increase, and infant and mother care is a priority.

In Tibet, *all* medical care is free; not even a nominal charge is paid. Because of the scanty population and the long distances, barefoot doctors are supplied with transport. Because of the long distances, each commune has a well-equipped hospital with beds. Doctors from China's big cities are here, training Tibetan doctors and paramedical personnel.

In one Tibetan commune I visited, 60 per cent of the children were covered by preventive inoculations including BCG, in one brigade 100 per cent. "Now the Tibetans are coming willingly to hospital, even to have babies", said a Shanghai doctor to me. At one time, Tibetan women customarily gave birth in the stable of their homes. Infant mortality has been drastically reduced; population increase in Tibet is between 2.2 and 2.5 per cent annually, depending on the district.

No substitute for community roots

It is the integration of the population itself with its own medical care, the fact that the barefoot doctor *is* part of his community, the son—and daughter–of the peasant he looks after, living and working with his own group and remaining there all his life, which is important. It is also significant that this web of medical care is supported by the communes themselves, integrated in the socio-economic life of the rural inhabitants. Any system whereby young city medical trainees are sent to villages for a short while to then return to the cities, can only be a face-saving device, but cannot assure this scientific, efficient and personal service which Chinese barefoot doctors can and do provide to the rural areas where the vast majority of China's people live. ■

e "Flying Doctors"
bile medical team sent
nessage to the hills
rrounding the small
ages near Meto. On
day they set up
ir clinic, hundreds
mothers brought
ir children for
ccinations. (ICEF
06/William Campbell)

The African Medical and Research Foundation, best known for its Flying Doctors Service, helps East African governments get medical services and training out where they're needed.

"You don't have to send a pigeon..."

John Balcomb and William Campbell

"Over there, on that hill!" the young Masai student shouted, pointing to a group of cow-dung huts surrounded by a thorn-bush fence. "Robbie" Robinson, a nurse with the African Medical and Research Foundation's (AMRF) "Mobile Unit II", nodded to the driver, and the Landrover lurched forward over the rocky ground.

Mobile Unit II was looking for Teju Salingea, an eight year old Masai boy, who was scheduled for an operation at Loitokitok Hospital, 150 kilometers east of his family home. Two months earlier, the unit had paid a routine health examination visit to Teju's three-room school in the nearby village of Meto. They had noticed Teju's left foot—contorted and crippled since a local witchdoctor had removed an important bone six years ago. They had consulted with the AMRF's surgeon, Donald Gilchrist, who thought Teju could be helped by an operation. Today, along with his teacher, Gideon Olenairi, they had come to take him to the hospital. When they reached the group of Masai huts, Teju hobbled up to the Landrover. He recognized Miss Robinson and Mr. Olenairi and smiled and said he was ready to go.

A joint effort to find out how the "Flying Doctors" are bringing health services to remote African villages was made by two members of UNICEF's Nairobi Office. John Balcomb is Chief, Communications and Information Service. William Campbell is a Programme Associate.

The medical unit's plane is a familiar sight to mothers and children on Kenya's Masai Plains, to the south of Nairobi. The unit spends almost eight months a year in the bush, running rural medical clinics, giving lessons in health education and giving vaccinations to young Masai children with vaccines supplied to the government by UNICEF. (ICEF 7207/W. Campbell)

Three days after the mobile team brought Teju to the Loitokitok Hospital, Dr. Gilchrist and his surgical team climbed aboard one of AMRF's "Flying Doctor Service" twin-engine aircraft at Nairobi's Wilson Airport. The plane took off and climbed through the early morning cloud cover, heading south in the direction of Mount Kilimanjaro. Fifty minutes later the team was looking at Teju's X-rays.

Dr. Gilchrist was scheduled for eight operations that day in different East African rural hospitals. The Scottish surgeon worked for over an hour repairing the damaged bone above Teju's twisted foot. When the operation was over, the foot was straight, and in three to four months Teju will be walking without the aid of a stick.

Mobile unit provides many services

The AMRF's mobile medical unit is a familiar sight to the mothers and children on Kenya's Masai Plains, to the south of Nairobi. The unit spends almost eight months a year in the bush, giving vaccinations, running rural medical clinics and giving lessons in health education.

The mobile unit does not work alone. When it recently arrived in Meto for its bi-monthly vaccination program, Miss Robinson and her partner, nurse Rosemary Sandercock, set up camp near the government health dispensary. The dispensary officer, Titus Kimilu, was an important part of their team during the next week as the unit gave hundreds of immunizations to young Masai children with vaccines supplied to the government by UNICEF. The members of the mobile unit also worked closely with the local school. They gave health examinations to all the children and discussed community health problems with the teachers. Mr. Olenairi, Teju's teacher, has become especially interested in health. He has now acquired enough knowledge so that he can assist his

friend Mr. Kimilu in vaccinations and so that he can recognize simple medical problems among his pupils.

Founded in 1957 by a Tanzanian plastic and reconstructive surgeon named Michael Wood, the African Medical and Research Foundation is best known for its Flying Doctor Service. No less important to the AMRF's aims and purposes are its mobile medical unit and its new and expanding training and education program. The basic idea behind all the AMRF's work is to apply better methods of communication (in both senses of the word, and ranging from aircraft to appropriate teaching materials) to the practice of rural medicine in eastern Africa.

Dr. Christopher Wood, Michael's brother and AMRF's director of training, puts it in a nutshell. "You don't have to send a carrier pigeon, you know. You should always try to use modern communications as much as you can to improve medical efficiency."

"Flying doctors" bring special skills

Since 1957, the AMRF's fleet of light aircraft, based at Wilson Airport, has grown from one plane to nine. They have calculated that, kilometer for kilometer, light aircraft are as economical a way of getting specialists to rural hospitals as sending them by Landrover—and the savings in terms of wear and tear on the doctors are fantastic.

Most medical schemes are based on a referral system. The rural dispensary is supposed to refer patients it can't treat up the line to a better staffed health centre, which in turn refers the more serious cases to the district hospital, and so on. Logical in theory, referral systems often break down in practice. The trouble, as Dr. Christopher Wood explains it, is that "up the line" may involve hundreds of kilometers in terms of distance and days or even weeks in terms of time. Often no more than one to three per cent of the patients in central hospitals are referral cases from rural dispensaries.

The alternative which the AMRF has been exploring is to bring specialized skills to the patient. A specialist, like Dr. Gilchrist, who operated on Teju's foot, can take off by plane from Nairobi or Moshi in Tanzania early in the morning. By 9.30 or 10.00 a.m. he can be operating in a district or mission hospital almost anywhere in Kenya or Tanzania. He can conduct operations in several different hospitals, make rounds and confer with local staff, and be back in his own bed by night.

Reaching sparsely populated areas

While the AMRF has ten doctors and specialists on its staff, it does not have a hospital of its own or even so much as a clinic at its Wilson Airport headquarters. All its work is done in co-operation with government and mission medical facilities and staff in Kenya, Tanzania, Uganda and, on occasion, adjacent countries. A voluntary agency, its job is to supplement and strengthen existing services with an emphasis on innovation.

While there are a few thickly settled rural areas in eastern Africa, enormous stretches of

With a bit of help and training from the mobile medical unit, Titus Kimilu (extreme right), the Meto dispensing officer, is able to run small clinics providing simple community medicine for the people around Meto. Titus' treatments are simple, but often very effective when coupled with a little health education. (ICEF 7208/W. Campbell)

land are very sparsely populated. The AMRF regularly sends a plane and a pilot to three sparsely populated districts — Kilimatindi and Loliondo in central Tanzania and Wajir in north-east Kenya—to fly the local medical officer or medical assistant around to the various dispensaries under his supervision, thus saving him up to a week of exhausting and wasteful travel over rutted tracks.

Radio network speeds services

The flight services are backed up by AMRF's radio network which reaches seventy-four local hospitals and health centres. This radio network is being increasingly used for consultations. Sometimes the advice is that everything that can be done for a child with a kidney disorder has already been done—that it would be pointless and even cruel to make him undergo a long journey to the medical centre in the capital. At the other extreme, where something ought to be done for a youngster that can't be done at district level because of lack of sophisticated equipment, the message may be: "We'll pick the patient up by plane this afternoon."

Last year the AMRF's Flying Doctor Service logged more than 2,500 hours of flight time for

a total of 667,200 kilometers. Radio traffic averaged 864 calls per month. While most of these were routine check calls and messages relating to flights, about a third were devoted to medical advice, consultations and patients' enquiries.

Filling need for teaching materials

So much for getting specialists and specialized advice out to the field in a hurry. The other major task the AMRF is now addressing itself to is not so glamorous, but it is equally important: the job of strengthening the training of the people who work in remote areas full-time, the medical auxiliaries.

Dr. Christopher Wood, who is in charge of this program, points out that it is not the AMRF's job as a voluntary agency to carry out the basic training of medical assistants, nurses' aides, and the like. The governments are doing that. Tanzania in particular, Dr. Wood says, is doing a "fantastically good job in the training of auxiliaries; they've given absolute priority to this in their health plans".

But there is an acute shortage of teaching materials, especially books. "In some places they have nothing but scruffy lecture notes left over by a previous medical officer. Or, if they have textbooks, they're written for Europe or North America and have little to do with local health problems."

Practical manuals for health workers

Last year the AMRF published the first manual on child health designed specifically for health auxiliaries in East Africa. Written by paediatricians and community health staff at the Kilimanjaro Christian Medical Center in Moshi, Tanzania, it was extensively reviewed and revised at two workshops, one held in Moshi and one in Nairobi, involving ten of East Africa's leading teachers and practitioners of child health. *Child Health* runs to more than 400 pages, profusely illustrated with line drawings and charts, and sells for only 15 shillings ($1.85) —a price so low that it would horrify commercial publishers of medical books. Costs are kept to a minimum because the AMRF does its own photo-offset composition and platemaking. (Some day the AMRF's acquisition of its printing equipment in 1973, financed out of grants from the British, Danish and Dutch Governments, may seem as historically important as its acquisition of its first plane in 1957—the personal gift of American TV star Arthur Godfrey.) The initial run of 1,000 copies was distributed

free. Demand was so great that a second printing of 5,000 has been run off which is being sold at cost.

The AMRF has just published a second manual, *Diagnostic Pathways,* designed as a practical guide for the training and reference of staff in rural health centres who may be required to see as many as 200 outpatients in a single morning. Manuals on community health, pharmacology, health education and obstetric emergencies are now in preparation. All are geared to the training of students who have been selected from candidates with an 0-level school certificiate (representing seven years of primary plus four years of secondary education) and

Chief surgeon Dr. Don Gilchrist of the Flying Doctors Service operates to correct a problem in a young Masai boy's leg. The patient was referred by the mobile unit to the Loitokitok hospital. Dr. Gilchrist and his team flew to Loitokitok for the operation. (ICEF 7209/W. Campbell)

all are simpler and more direct in their approach than the texts used in regular medical schools. Most important of all, the manuals are relevant to conditions as actually encountered in rural East Africa.

The AMRF has recently received grants from two Canadian agencies — CIDA and "Development and Peace"— to train a health education officer chosen from the existing staff of each of the seventy-four hospitals with which they have radio contact.

Seeking alternative training methods

Looking to the future, Dr. Wood and his colleagues are working on plans for assisting the continuing education of rural health workers by correspondence courses coupled with periodic tutorial sessions, a scheme based in a modest way on the principles of Britain's highly successful Open University program. AMRF is exploring this idea as an alternative to refresher courses of the usual type conducted "at enormous expense" in Nairobi or other big cities, where the chief attraction usually turns out to be shopping.

"The right place for the treatment of a patient is as near his home as you can get," says Dr. Wood, "and the right place for the continuing education of a rural health worker is as near his place of work as possible." ■

Modern medicine finds an ancient ally in India

Jim Breetveld

Facing the challenge of bringing adequate health care to the hundreds of millions of people in rural India, modern medicine is seeking an ally in the ancient practices of Ayurveda, the Indian traditional medicine whose name means "science of life".

Ayurveda, which influenced medical systems of Arabia, Egypt, Rome and Ancient Greece—and through them the beginnings of modern medicine itself—has existed in India for perhaps 3,000 years.

Although superseded in many areas by developments in later forms of medicine, Ayurveda has always retained one great strength: its contact with the people. And it is this contact with the vast rural populations of the subcontinent which makes Ayurvedic medicine such a powerful potential ally in the development of broad-based health care systems.

About 400,000 Ayurvedic practitioners work in India today, most of them in rural communities where they are socially and culturally close to the people. Only half of these practitioners are regarded as qualified, and a mere fraction have more than an elementary knowledge of modern medicine. Yet these 400,000 represent medicine for the 80 per cent of India's population living in the country's 570,000 rural villages.

In 1948, a government committee recommended integrating traditional and modern medicine into a single health care system and in 1971, a council was established to control standards and practices of traditional medicine.

Of doctors trained in modern medicine, there are about 125,000 in India today but most of them are in the big cities. A mere 20 per cent—

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A child suffering from acute insomnia and other nervous ailments is given a very ancient Ayurvedic treatment called *Dhara Kalpa*. Lukewarm medicated oil, made from herbs and seeds, is allowed to drip onto the child's forehead and its acts as a tranquillizer. Each "dripping" session lasts from 20 to 30 minutes. An average treatment runs from seven to ten days. A similar treatment is used for schizophrenia. Dr. Hari Datta Sharma, Director of the Moolchand Ayurvedic Hospital in New Delhi, claims that this therapy does not exist in any other system of medicine and has been mentioned in Ayurvedic texts for centuries. (ICEF 7211 / T. S. Satyan)

some 25,000—are working in the rural areas.

Among this small minority, however, two dedicated doctors, Dr. Mabelle and Dr. Rajanikant Arole, have demonstrated what can be done, using local resources and the skills of Ayurvedic practitioners and local health workers, to establish a comprehensive system of health care in the rural area of Jamkhed.

The example of Jamkhed

Late in 1970, these two doctors launched a comprehensive rural health care project centered in Jamkhed village, about 250 miles southeast of Bombay. The project covers about 40,000 people in thirty surrounding villages.

Two of the relatively few Ayurvedic physicians with knowledge of modern medicine in the area were recruited to widen the base of health care.

Moreover, to reach all the district's scattered communities, it was necessary to involve all the area's health workers and traditional-medicine practitioners. These were contacted and invited to the centre in Jamkhed.

An Ayurvedic doctor collects *Aloe Indica Royle*, a member of the cacti family, from a garden outside Moolchand Hospital. (ICEF 7212 T. S. Satyan)

The doctors laid out the project's strategy. "We explained our programmes to them. We explained that we wanted not to compete with them but to help them by providing simple drugs, enhancing their skills and providing facilities for their patients.

"In return they were to help us with nutrition programmes, immunizations and the care of patents referred to them."

To effectively use its manpower, the Jamkhed project created mobile teams of health workers—a physician, nurse-supervisor, social worker, auxiliary-nurse-midwife, driver, paramedical worker and village health worker—travelling daily to different communities.

This shortened patient travel time and reduced treatment costs, helped in detecting sickness earlier and resulted in enormously in-

What is Ayurveda?

Some historical facts

Ayurveda, the indigenous Indian system of medicine, developed against a rich background of social, cultural and philosophical principles prevailing in India between 600 BC and 700 AD. Its three great authors, Charaka, Sushruta and Vagbhata, were influenced by the Sankhya and Yoga philosophies and discussed not only bodily illnesses, but also psychosomatic disorders.

Ayurveda is based on the principles that human beings are constituted from the same basic elements as the universe. These elements were familiar to European medicine of the Middle Ages as "humours", which were held to account for different types of health disorders, not only physical but also mental.

In India, an elaborate system was evolved for the selection of students, codes of conduct, methods of training and examinations. Practitioners had a high standard of social behaviour and were strictly disciplined. Their works embraced anatomy, gynaecology and obstetrics, including Caesarean section. Surgery was well-developed and included operations to fragment stones in the bladder to facilitate their elimination; treatment of cataracts of the eye by downward displacement of the lens; and bone-setting and other operations for those wounded in battle. Anatomical dissections were undertaken. Cases of infectious diseases were isolated. Immunity was known and inhalation anesthesia used. Principles of dietetics were appreciated and utilized in the care of the sick.

At the beginning of the Christian era, Ayurveda influenced medicine in Arabia, Egypt, Greece and Rome. The advent of Moslem rule in India brought with it the Unani or Arabic system of medicine, and both were used in popular health care. Ayurvedic practice suffered a decline under British rule when Western European surgery was introduced in India. By the end of the 19th century, the indigenous system had become static—having fallen mainly into the hands of untrained persons incompetent to practice Ayurvedic medicine properly.

Today, nearly 100 established Ayurveda colleges in India have trained some 500,000 physicians, most of whom have adequate practical knowledge of modern medicine as well. These practitioners, it is felt, could meet the immediate primary medical and health care needs of India's rural population after undergoing a few additional short-term refresher courses.

Some medical facts

Dealing with stress. *The emphasis on appreciating the psychosomatic constitution as part of an understanding of human health as a whole, which is fundamental to the Ayurveda approach, has particular relevance to psychosomatic and stress disorders which are still inadequately understood and rapidly becoming more prevalent in the modern world. These disorders include such things as coronary thrombosis, hypertension and peptic ulcers.*

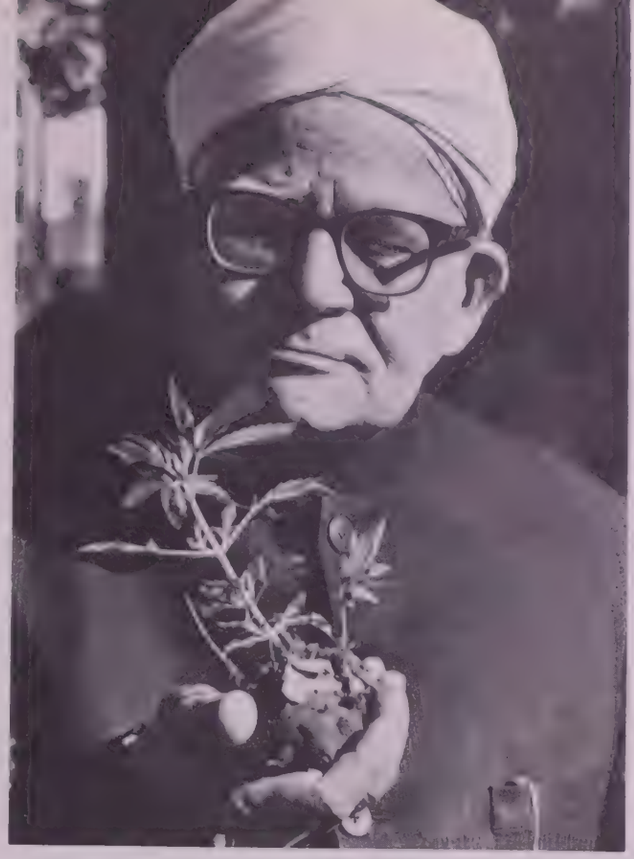
Preventive care. *Ayurveda has demonstrable relevance in preventive health care measures through aspects such as personal and social hygiene, the use of rejuvenating*

creasing community involvement in, and understanding of, the value of preventive medicine. The emphasis of almost two-thirds of the project's budget for community health is on prevention, compared with one-third on curative treatment.

To achieve this revolution, the doctors say, "health was eyed through the community's eyes rather than the health professionals'. . ."

And they pay tribute to the role of the "indigenous practitioner".

"People need someone to go to when they are sick. Since modern medical graduates do not like to serve rural areas, indigenous practitioners often fulfill this important need. They are trusted by the community. This community trust can be utilized by implementing community health programmes through them.



Dr. Hari Datta Sharma holds up a *Cannabis* Indica plant which is widely used in Ayurvedic medicines. Ayurvedic doctors generally use indigenous plants to make their low-cost medicines. (ICEF 7213 T. S. Satyan)

herbal drugs and exercises to maintain bodily and mental health, and the practice of Yoga which has helped patients to overcome early stages of asthma, diabetes, thyroid disfunction and hypertension.

Curative medicine. *The curative aspects of Ayurveda include drugs derived from herbs and other natural elements, either given as emetics or purgatives, or in combination with dietary treatment and physiotherapy. In dealing with paralysis following a cerebral haemorrhage, for example, Ayurveda prescribes drugs to stimulate regeneration of the peripheral nerves.*

Such Ayurvedic preparations are mostly in the form of powders, liquid extracts, tinctures, decoctions and tablets. Many attempts have been made in recent years to standardize their preparation and to isolate their active principles. Rauwolfia serpentina *is one such drug whose active principles are being extensively used all over the world. Other drugs studied included* Picrorrhiza kurroa *for the treatment of liver diseases;* Allium sativum *(garlic) for the control of hypercholesterolaemia (an excess of cholesterol in the blood) and heart disease;* Semecarpus anacardium Bhallatak *for worm infestations and arthritis;* tambool *for heart diseases and* punarnava *for urinary diseases.*

Nutritional therapy. *A large variety of Ayurvedic dietetic preparations have been found extremely valuable for maintaining the patient's nutritional status during illness. When the modern physician dealing with acute gastroenteritis in children would advise immediate fluid therapy, Ayurvedic physicians would try to maintain the child's fluid balance by carefully planning intake and at the same time administering anti-emetic and anti-diarrhoeal treatment. Specific fluids—such as whey, boiled rice water and fresh coconut water—are prescribed together with fruit juices with astringent properties such as apple and pomegranate; milk is forbidden in such cases.*

Other illnesses. *Ayurveda describes such treatment for all types of acute and chronic illnesses and current treatments appear very effective in cases of chronic metabolic diseases such as diabetes and arteriosclerosis. Similarly amenable to Ayurvedic treatment are various types of arthritis, gastro-intestinal and urinary tract diseases, asthma, allergy, some specific skin diseases, chronic neurological disorders and some mental ailments. Patients with diseases which do not readily respond to modern treatments have benefited greatly from Ayurvedic therapeutic measures.*

When referral is needed. *Ayurveda, on the other hand, has no effective method for managing acute emergencies such as perforated peptic ulcers. Here, the Ayurvedic physician's responsibility is to correctly diagnose the problem and refer the patient to a specialist for treatment.*

Medicines: internal and external. *Apart from internal medicines, Ayurveda prescribes a large number of pastes, medicated massage oils, medicated baths, gargles and powders for external application. The effectiveness of medicated oils for some diseases of the joints and for some neuromuscular disorders is well-known. The specific treatments of burns are also well-established. For example, ointments prepared from papaya juice, when applied quickly to superficial burns, will gradually slough away devitalized and dead tissues; later, medicated ghee (oil) from the jati flower promotes healing, and skin grafting is also used to supplement treatment of extensive burns.*

Although these treatments are broadly defined for different diseases, the Ayurvedic physician prescribes individual therapy—drugs, dosage, diet and rest—according to the psychosomatic and physical conditions of each patient.

"Can such a project be replicated? The answer is 'Yes'. There are dedicated practitioners caring for people in the countryside. Communities trust and respect them as a result of their service.

"Each practitioner can be given responsibility for health care development in an area that he can manage. Governments and other providers of health care need to equip him with the necessary tools.

"Similarly, medical institutions in rural areas can enhance their effectiveness by meeting the total health needs of the community rather than focussing on the care of the individual patient.

"The project is based on finding resources within the community and activating people to identify and solve their health problems."

Apart from the Jamkhed project, there are other signs of progress in mobilizing the resource represented by traditional medicine and integrating the old with the new.

In Karnataka State, for instance, an inexpensive new Ayurvedic medical kit has been developed and may soon be available throughout the country.

The addition of Ayurvedic practitioners could provide an important new dimension of skilled and semi-skilled manpower to the national drive for better health coverage in India's villages which began in 1952 as part of the country's ambitious community development programme. This effort aims to bring an integrated "package" of services which includes both preventive and curative health services, particularly

A worker at the Moolchand Ayurvedic Hospital in New Delhi rolls Ayurvedic pills and sets them out to dry in the sun. (ICEF 7214/T. S. Satyan)

for mothers and children, plus nutrition and family planning assistance.

With considerable aid from UNICEF, a network of 5,000 primary health centres and about 34,000 sub-centres has been created expressly to supply minimal health services to the rural areas.

Even after more than two decades of effort, the lack of medical manpower has remained a serious stumbling block. Now, however, growing recognition of the potential represented by its practitioners is bringing the ancient medicine of Ayurveda back into the mainstream of modern health care. The traditional healer is an ancient ally not only in India but in almost all countries of the developing world. Adapted to diverse cultures and social conditions, these healers are one of the best hopes for spreading health care to the people who need it most. ■

A child receives a hot poultice of garlic, salt and powder from *myrica nagi* plant seeds. The ingredients are mixed in warm oil and rubbed gently on the skin with a piece of cloth to relieve muscular local pains, lumbago and backache. (ICEF 7215/ T. S. Satyan)

Nine Do-it-Yourself Health Actions

Dr. Sam Street
WHO Representative, Ethiopia

During many years of health work in the developing countries, I have seen disturbing trends that, in my view, have seriously impeded the development of basic health care services to reach the vast majority of the world's people who presently—and for centuries—have had little or none at all and who live under unbelievably appalling conditions of poverty and disease.

I am especially troubled by the fact that most Western-trained doctors—and many nurses too—choose to live and work in impressive "show-case" big city hospitals and to maintain private practices catering to the relatively small numbers of advantaged urban dwellers, rather than go to the rural villages and urban slums where health needs are greatest and health services pitifully inadequate or non-existent.

But an even greater frustration for me is the fact that although many simple, practical, effective health techniques and ideas are known, available and suitable for even the most remote, backward and poorest communities, very little effort is being made to introduce them to the people who need them so urgently. In some cases where they have been brought to the attention of villagers, they have been readily accepted because they can be easily understood, appreciated, and carried out by the people themselves, with minimal help and guidance from outsiders.

Here, then, are nine approaches that I feel show real promise of greatly improving the human condition and bringing specific health benefits to large numbers of disadvantaged peoples who have never had even the most minimal health services before:

Dig a pit—dig two. How can kitchen waste, rubbish and animal refuse be disposed of—and in the process produce something useful and needed? Dig two pits, either for individual houses or for a cluster of houses or huts in a rural area: one pit for active use, the other to lie fallow to allow the manure to mature. Cover the refuse with a shallow layer of earth to avoid flies and offensive odours. If the heap is moist, in a couple of days a high temperature may be developed by the process of fermentation which will kill off the dangerous parasites such as hookworms, roundworms or other organisms that produce germs causing diarrhoeal diseases. The nitrogen-containing materials of the heap will, in the course of two to three months, be converted into useful humus or manure for land fill and fertilizers.

A simple message by a local Ethiopian artist (ICEF 7222)

Grow a garden for better nourishment. A kitchen garden in every household can produce vegetables as well as fruit trees. To make certain that all dangerous germs and parasites are eliminated, wait six months before using the manure heap. Alternate the use of the two pits: while one is in active use, let the other lie fallow; then after six months reverse the process, turning the active pit into the inactive heap. While this simple measure may be known to some, it is not in general use. And what an easy way to help keep the human dwelling and environment clean, kill the harmful parasites and produce a fertilizer of economic value to agriculture.

Consider how the benefits can multiply: In Ethiopia, for example, a country of 30,000,000 people—with an average of five members to a family—there are approximately 6,000,000 families. If each family produces the equivalent compost manure of about Eth. $100.00 (about $ US 49) of fertilizer per year, then, 6,000,000 families could theoretically produce Eth. $600,000,000 (about $ US 292,000,000), and kitchen gardens and fruit trees will continue to flourish and better nutrition will be achieved and maintained for years and years to come.

Make a better latrine. People usually know about digging a simple hole or pit to serve as a primitive latrine. But at best, this is only of temporary use by itself, and at worst, the smell is extremely unpleasant and the pit is a focal point for collecting flies which are a constant source of irritation. But there is a better way and one that is simple and inexpensive. Using cement and a simple mould, a bowl can be made which seals off flies and odours. The latrine is easily flushed by pouring in additional water. By making the latrine a more pleasing place, more people will be encouraged to use it more frequently.

Dig a well—dam a stream. An acute shortage of water supply is prevalent throughout the developing world, especially in rural areas. How then can a community that lacks sufficient water for its routine drinking and cooking needs be expected to have additional water for washing and flushing pit latrines? Fortunately, more and more governments, with help from UNICEF and other sources, are helping villagers introduce relatively simple, inexpensive ways of bringing safe and ample water supply to communities, largely through digging of wells and constructing drainage systems. Of equal, or perhaps even greater, importance is the effort being made to help educate the people about the importance of safe water in making—and keeping—their children and themselves healthier. It is exciting to see how eager and willing villagers are to participate in this effort, when given the chance, by contributing their labour in the digging of wells, damming of streams and in other related activities.

Swat a fly—swat many. Flies are a menace to good health, and there are signs that more and more people are becoming aware of the vicious cycle of flies, infection and disease that needs to be broken. Few sights are more pathetic to behold than the faces of children completely covered with flies—flies which we know can cause trachoma and other serious diseases. Few frustrations are harder to bear than knowing that a simple solution exists to correct this problem but that little or nothing is being done about it. An enormous amount of money can be spent to mount expensive trachoma control campaigns and to build and equip health centres and clinics to treat cases of fly-borne diseases, but why not get rid of the flies before they can begin to do their damage? How? By

swatting them. Reports testify to the effectiveness of the Chinese Programme of National Fly Swatting. Why can't this simple, basic health action be developed and encouraged throughout the developing countries where flies pose such a serious threat to child health?

A fly swat, like a tennis racket, has a perforated broad area reducing the pressure of the column of air which warns the fly to escape. The traditional fly whisk is too expensive, but what is worse is the fact that it merely serves to fan the flies away from one person to another. Anyway, few people own them. By developing a simple fly swat, fly-borne diseases can be cut down—and the possibility exists of creating a new cottage industry.

(I stopped at a wayside restaurant in which the tables and the room were covered with flies. I killed about 12 flies in seven minutes—in an hour I could probably kill about 100. If 20 other people did the same, about 2,000 flies could be eliminated in an hour. Perhaps the entire fly population in that restaurant could be wiped out in that way.)

A fly is capable of breeding millions and millions of flies in a few weeks. Therefore one fly killed today can reduce enormous numbers of files next year. Let us encourage villagers to swat flies. The next WHO Day theme is "Foresight Prevents Blindness". The biggest cause of blindness is trachoma. If we set aside WHO Day next year to launch a fly-swatting national campaign, this might have a tremendous impact. But first, an effective fly swat must be made. Let us stimulate local production of a suitable type made by the people themselves.

Control a pest. One of the most serious complaints heard in villages concerns the prevalence of household pests such as fleas, bed bugs and lice. They irritate the people at night and cause fevers and skin diseases. In most cases, these pests are becoming resistant to DDT. We may tell people to sun their bedding and wash properly, but even if they were to comply, we are not attacking the root of the problem. There are insecticide products on the market but most people cannot afford to buy them.

Is there any simple solution to this problem? What can people do in a mountainous country like Ethiopia, for example, which lies in the tropical belt? In parts of the country where the elevation is about 7,000 feet, the chrysanthemum plant which produces pyrethrum can be grown. At places with that elevation, the rural peasants can be shown how to plant this crop extensively, thereby ridding themselves of their pests easily and inexpensively. Pyrethrum insecticide can then be sold more cheaply than other available products to people in adjoining villages at other elevations. Thus, another source of income can be developed. Pyrethrum has become the biggest foreign exchange earner in nearby countries. This is just one example of controlling diseases by growing crops of easily available plants. Other kinds of crops from other plants can be grown to control still other diseases.

Make a brick. One of the best ways to control pests is to prevent them from getting into the house or hut in the first place. Generally, they get in through cracked walls or fissures. A very simple approach can be used to help correct this problem. Stress the value of building a human dwelling with bricks, and in places where people don't know how to make bricks, TEACH THEM, and another cottage industry can be developed for health.

Train anybody who is willing. Today there are effective vaccines available for immunization against ravaging childhood diseases. Why then are millions of infants and young children in developing countries still dying of these diseases or, if they do survive them, spend the rest of their lives often suffering from permanent physical and mental impairment? Many complex reasons can be given for this intolerable situation, but let us just consider one major reason: the shortage of trained health workers in general and their frequent reluctance to go to outlying areas to provide basic health services, including immunization.

But you don't need a doctor, a nurse or even a paramedical worker to perform the extremely simple and easily-learned task of giving a vaccination against TB, diphtheria, measles, whooping cough, tetanus, and even some less common but very serious diseases such as meningitis, infantile paralysis and yellow fever. Let us go to the people themselves—a great untapped resource—and offer them the opportunity to participate in health work in their own villages. Let communities choose from among themselves the people they want who are willing to work part-time or full-time. After receiving a short training course from well-trained personnel, they would be adequately equipped to perform vaccinations and other basic health services—under proper supervision, of course—to the people in their communities.

It is heartbreaking to see so many child beggars disabled by infantile paralysis, knowing that this disease can so easily be prevented by simply pouring a couple of drops of polio vaccine down the mouth of a child—a task anyone can perform. In one day, in one country, 98 per cent of all the children were immunized in this way, and no cases of polio appeared in that country in the following years.

Why, we may ask, must it take so long for this easy approach to be put into widespread practice? Why must we wait so long to build a corps of willing and eager village health workers who can easily be trained to bring basic health care to millions and millions of people—and especially the most vulnerable part of the population, the children? Indifference? Inertia? Resistance on the part of the medical establishment to accept people with simple training into their medical network? Unless more village level health workers are trained and integrated into the regular health services, it is not likely that the vast majority of people in developing countries will receive even the most minimal health services in the foreseeable future.

Get your message across. How can you teach people who can neither read nor write some of the simple health care ideas and measures described above, especially in areas where modern communications technology is both unknown and unavailable. One of several ways to get simple health and nutrition messages across in situations of this kind is to draw upon the local art form. For example, simple, colourful illustrations prepared by local talent can be made to convey easy-to-understand messages which, when needed, can be combined with easy-to-follow "how-to-do-it-yourself" instructions. (The accompanying illustrations are two such examples.)

Let us spread the word about the importance of basic health care and how much people can do themselves to improve their physical and human condition.

Here he shows how to kill household pests (ICEF 7221)

TWIN GOALS IN BANGLADESH:
• Preventive health
• People's participation

Moncef Bouhafa

Hannan is six years old. He lives with his family and his brothers and sisters in the small village of Bolihar in the extreme north of Bangladesh. The nearest health centre is at least a day's travel by slow bullcock cart or by foot. Hannan has probably never seen it.

Like other children of his age in Bangladesh, he has an uncertain future; reaching the age of six in the small over-populated country is hazardous. Malnutrition leads to many diseases which account for a high infant mortality rate, one of the highest in the world. Of every 10 children born, more than five will never reach the age of six. They will die from cholera, dysentery, smallpox and other diseases in a country where more than half the children are undernourished and must suffer the tragic consequences. Some die simply from insufficient diets.

Must these deplorable conditions continue or can something be done about them? The fact is that most of the diseases in Bangladesh can be easily prevented, and some efforts are already being undertaken to improve conditions.

Many problems are preventable

Take the problem of water. Sixty per cent of all diseases are caused by polluted water, a situation which exists all year round, but is most acute immediately after and during the four-month monsoon rains that reduce the land mass in Bangladesh by 70 per cent each time the waters rise to flood the rice fields.

Yet, one well in a village that provides a continuous supply of safe, clean water can dramatically reduce the number of children that suffer from diarrohea and cholera. Fortunately, more than 20 million people now have access to these wells. UNICEF is currently furnishing the government's public health department with materials and other assistance for sinking wells in each of the 64,000 villages of Bangladesh. And the cost for each well is so little—about $74 for the materials—and the health benefits are immeasurable.

Then there are the diseases which also can

In his capacity as Information Officer in UNICEF's Dacca Office, Moncef Bouhafa has travelled throughout Bangladesh observing the different ways in which health services are being carried out and some of the initiatives being taken by communities to provide basic services to more people living in outlying areas.

easily be prevented by simple health measures. Tuberculosis and smallpox, for example, can be prevented by injections or vaccinations; night blindness (xeropthalmia) can be prevented by providing a child with a high potency vitamin A pill to be taken once every six months.

These and other measures are known and available, but the real problem is getting these health services to the people who are scattered in the seemingly endless villages throughout the country. Even though the government is rapidly increasing the number of rural health centres, they cannot by themselves begin to meet the needs of all the people. The distances people would have to travel are too great, and during certain periods, travel is virtually impossible.

Another serious problem is the shortage of doctors. Only one doctor is available for every 10,000 people, and even this figure is deceptive, for while many of the doctors practice in Dacca and the other major cities, more than 90 per cent of the population lives in the rural areas.

Bangladesh is attempting to improve its existing health structure by placing greater emphasis on preventive health measures, especially through the use of its army of basic health workers who travel throughout the villages. In

A young village health worker checks a child in a school in Sylhet, Dacca, to see if he has any signs of Vitamin A deficiency which could lead to blindness. (ICEF 7217 Moncef Bouhafa)

A handpump well installed by UNICEF's Public Health Engineering division near Dacca. More than 160,000 handpumps are already providing water to 60 per cent of rural families. (ICEF 7220 John F. Shawcross)

addition, two innovative projects in Savar and Sylhet, largely supported by voluntary efforts, are seeking alternative ways of bringing preventive health services to more people in outlying areas.

A typical family welfare worker

Tofazzal Hossain is one of more than 12,000 basic health workers in Bangladesh, also known as Family Welfare Workers (FWW's), who work for the Ministry of Health and who perform specific preventive health tasks in clearly defined areas. Each FWW is supposed to cover approximately 4,000 people, but Tofazzal sees more than 5,000 over an area of five square miles in the northern district of Rangpur.

In the small village of Bolihar, Tofazzal is finishing his "rounds" for the day. Each worker has a tour programme that he follows for the month, which is registered with the District Health Officer. He visits 40 to 50 households each day, and usually sees each household once every six weeks. The households all have health cards which list basic data about the family members: age, sex and date of birth of children, with additional columns for information on smallpox vaccination, vitamin A capsule and other items. On the back of the card, the FWW must sign his name to show that he has made the visit.

The houses are numbered, and when we catch up with the FWW he is with the dwellers of house 50a, owned by a farmer, Moinuddin Ahmed. At this time, the family is relatively healthy compared to many one meets in remote villages similar to Bolihar. Probably one reason is the fact that the harvest has just been completed so there is more food available and, therefore, more money too. Moinuddin's son, Hannan, complains of fever. Suspecting malaria, the FWW takes a blood slide that will be analyzed at the rural health centre's laboratory, and if there is a positive sign of malaria, anti-malarial drugs will be administered.

This is only one of several functions that Tofazzal Hossain has to perform. Others include:

—Immunization and primary vaccination and re-vaccination against smallpox (a task that will soon be obsolete since Bangladesh has been declared smallpox free);

—Cholera and typhoid vaccination, and BCG vaccination against tuberculosis;

—Health education covering environmental sanitation, water purification and family health;

—Sputum samples of suspected tuberculosis cases;

—Participation in anti-malarial and anti-epidemic programmes;

—Maintenance of family health cards;

—Administration of anti-malarial, anti-leprosy, and anti-tuberculosis drugs to confirmed patients;

—Distribution of high potency vitamin A capsules supplied by UNICEF.

Most of the FWWs are like Tofazzal—male villagers who have graduated from high school.

A literacy class in Sylhet not only teaches village women to read and write but also provides training in handicrafts. (ICEF 7218/Moncef Bouhafa)

Only a few female FWWs can be found in the cities, and they are there by chance not design. The FWW who comes from the village is trained for a few weeks at the beginning of his service. Health officials recognize the need for more refresher training for these paramedics, and together with UNICEF and the World Health Organization, they are seeking ways to improve the system. More workers need to be hired, and more must be trained. As one doctor put it: "In theory they are like the 'barefoot doctor' in China, but they still need more training and more support from their colleagues before they will really earn that title."

The Savar project

Gono Shaystha Kendro—the People's Health Centre—is an integrated development project covering the Savar *thana* (administrative unit), twenty minutes north of Dacca. The centre stresses public health and bases all its efforts on the principle that health care cannot be viewed in isolation, but rather as a part of the overall problem of development.

The first health insurance scheme in Bangladesh was instituted at the centre whereby villagers pay a monthly subscription and receive the health care they need, both preventive and curative. Non-subscribers in the area receive the same services for a small fee each time they require them. While the focus is on health, the activities are wide-ranging and include cultivation of nutrition crops like soybean, family planning, nutrition education, functional education for women and the manufacture of handicrafts.

The symbol of the centre is a village hut framed in a red cross with the motto "Gram Cholo Gram Joro" which means "come to the village build up the village". The hut represents the village, and the red cross medical care.

Seventy eight villages in the *thana* participate in the health insurance scheme, which includes roughly 12 per cent of the population of more than 200,000 people in the *thana*.

Curative health services are, of course, provided at the Savar health centre, but the emphasis is always on preventive health care. Its key personnel are paramedics who travel to outlying villages. Of the 45 paramedics, most are women who live at the centre and go through a rigorous schedule each week that begins with agricultural work.

A rigorous schedule for paramedics

The underlying concept of the Savar project is that paramedics must not only deliver health care, but must know and understand the way of life of the people they serve. Since the large percentage of villagers are farmers or agricultural labourers, the paramedics are encouraged to accept agricultural activity as a necessity and not something beneath them. The harvest from the crops they cultivate is used for their own meals. Each morning they work in the fields from 5 to 7 a.m. Their day ends in the evening

about 10 p.m. after they have had refresher courses on health care and other subjects important for their work.

The typical paramedic is young, and in most instances a high school graduate. Khanam Dey, for example, is only 19, and she has already been working here for more than a year. She is the eldest child in a family of four. Her father is dead, and she is the only wage earner in the family. When she came, she was trained on the job for more than a year. She was given certain basic skills and taught how to diagnose the more than half a dozen diseases which account for more than 80 per cent of all patients. Each morning she goes out to the villages within a few miles from the centre. Sometimes she will take a country boat or a small flat dug-out that makes travel easier in the monsoon. Otherwise she will go by bicycle, or in most cases, by foot.

In Charigram village she calls on Kamala, an elderly woman who is using oral contraceptives. She wants to study the client's progress. While we watch, she checks the blue card that all insurance subscribers have. She notes that the family is in arrears on its premiums of two takas (15 taka = $US1) per month and collects the sum from the husband, Moazzam Ali. Ali has been a subscriber since 1972. He is well-to-do, owning 16 bighas (1 bigha = ⅓ of an acre) of land.

The Savar paramedic performs the same functions that the FWW does, with the addition of family planning. The system is localized but unlike the FWW, the paramedics here receive continual supervision and training. The project receives major assistance from external sources such as OXFAM and smaller amounts of aid from UNICEF such as seeds for the nutrition programme. In Sylhet, another voluntary agency is also carrying out a public health programme that encourages people to pay for health care through an insurance scheme.

The Sylhet project

A district criss-crossed by major rivers, Sylhet is one of the most difficult in which to travel. In three *thanas,* the Bangladesh Rural Advancement Committee (BRAC) is carrying out a public health programme that is supplementing the government's own efforts in the country. The project is centered in Sulla and several other camps. Each of the camps has housing facilities for paramedics and a small clinic. In addition to providing public health services, BRAC also carries out programmes of functional education and nutrition education and is involved with co-operatives, agricultural and family planning activities. BRAC also publishes a monthly newspaper called Cono Kendro (People's Forum) devoted to propagation of nutrition education and agriculture. It is distributed to all the educational institutions in Bangladesh and receives subsidies from UNICEF.

Among the 32 paramedics is Dina Bandhu Mitra, a young bengali who works out of the central camp at Sulla. His name in bengali means, "friend of the poor". Today is his day to visit Korcha, a fishing and rice growing village some 20 miles down river from Sulla in one of the more remote areas of Bangladesh. Thanks to a small speed boat, we make the trip in an hour, which would normally take Dina more than three hours by country boat.

From the river he walks about a mile into the village where he is greeted by the villagers and followed by young children through the muddy paths that lead to the primary school where he will see the day's patients.

Paying for health services in rice

This is one of the many villages that are participating in the insurance scheme. Unlike the Savar project, the people here pay in rice for their annual subscription. Each family member must pay four seers (a little less than one kilogramme) of rice per year. Depending on the selling price of rice, which is always fluctuating, that is the equivalent to 12 to 20 taka (US $.80 to $1.30) per year. The subscribers in this village have contributed 42 maunds (88 lbs) of rice for 1975.

As we sit in the dimly lit primary school, the patients begin coming one by one with their problems, each carrying an insurance card. Then the people explain their problems to Dina. Oholya Brishanab is three years old and has measles. He is referred to the clinic after getting some tetracycline syrup. An old man comes up complaining of weakness. He wants to be given a pill, which many bengalis believe will cure everything. Dina tells him that pills cannot provide strength but that he must have a good diet, and suggests which vegetables he should eat regularly.

Pradip, a small boy, has dysentery. The paramedic shows his father how to make a simple rehydration fluid from salt and sugar and some clean water from the village tubewell. Most deaths among children are caused by dehydration, and the fluid is simple to make with ma-

terials available in the village. He also tells the father to buy "Dab", the green coconut which also provides a good rehydration fluid. On this day, Dina sees more than 20 patients, all suffering from the seven or eight more common diseases in Bangladesh.

His day begins at 7 a.m. starting with camp service at the small clinic. Afterwards he sets out to the village. He carries only basic health equipment with him: a thermometer, a stethoscope, a syringe as well as some 20 medicines including tetracycline, penicillin and idoquine.

Once a month he holds a class for pregnant and lactating mothers where he lectures on nutrition and proper child care as well as weighing the babies and recording their progress with the mother. The project is funded from external sources and is limited to Sylhet for the time being. There are plans to extend this programme which is trying to reach beyond just health matters alone. As our doctor friend explained: "In order to have development through self-help measures in the villages, the villagers must first be healthy." In Korcha, the villagers appeared to be a little better off already.

Community initiative

Most villagers throughout Bangladesh are not as lucky as the people in Savar and Sylhet who are benefiting from the many positive health measures being carried out. But these projects are important because they demonstrate how much can be accomplished, at relatively little expense, by motivating communities to draw upon their own resources.

They can choose amongst themselves the villagers who should be given simple, brief training in elementary health care. They can help to organize their own health care system and can provide the support needed to assure its growth and continuance. The initiatives taken by communities and the active participation of the people provide the greatest hope for speeding up basic health services throughout Bangladesh, other developing countries—and also in disadvantaged areas of the developed world. ■

The importance of nutritious food for young children is stressed as a key preventive health measure. These children are enjoying a nutritious meal as part of a child feeding programme. (ICEF 7216/Bouhafa)

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UNICEF news

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the rootless ones

UNICEF NEWS

Issue 88/1976/2
Editor: Miriam Miller
Design: Bernard P. Wolff

P.3 **Lives Saved . . . And a New Health Idea is Accepted by Mali's Nomads.** A successful measles immunization campaign among the Peul nomads convinced *Dr. Pascal James Imperato,* presently First Deputy Health Commissioner of New York City, that it is a fallacy to believe that nomads will not absorb changes into their traditional lifestyle.

P.10 **A Precious Piece of Land for India's Landless Labourers.** A pledge by the Indian Government to give each landless labourer a piece of his own land is the beginning of a series of reforms to improve the lives of millions of these rootless, disadvantaged people, according to *Trevor Drieberg,* a free-lance Indian journalist.

P.16 **Farmers and Fishermen . . . A New Way of Life for Somalia's Nomads.** Drought-ravaged and overgrazed rangelands have forced many nomads to change their way of life. *William Campbell* of UNICEF's Nairobi Office describes how the Somali Government is resettling large numbers of nomads in areas where they can start a new life as farmers and fishermen.

P.23 **New Lands, New Life in Paraguay.** Journalist *Agostino Bono* writes about the growing numbers of Brazilians who are uprooting themselves and resettling in Paraguay where new, cheap land is attracting them. Despite many problems caused by the heavy influx of people, the colonists look forward to building a better life for themselves and their children.

P.27 **Bringing the Bedouins in From the Desert.** The promise of an education for their children is an important reason why many Egyptian bedouins are settling down in Marsa Matrouh. Health services and land where cash crops can be grown are among the other attractions, reports *Donald Allan,* Chief of the Information Division in the UNICEF Office for Europe.

WORLD BANK: KENYA HEALTH EXPENDITURE FIGURE. The *Health Sector Policy Paper* published by the World Bank in March 1975 shows the per capita health expenditure of the Kenyan Government to be $0.14. This figure was excerpted and appears on Page 5 of the UNICEF NEWS issue 87 on "Health Care for All". The World Bank states that the correct figure should have been $2.93.

Cover photograph by Bernard Pierre Wolff

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UNICEF News is published four times a year by the UNICEF Information Division, United Nations, New York. The yearly subscription rate is $6.00

United Nations Children's Fund, United Nations, New York, N. Y. 10017

Lives saved... and a new health idea is accepted by Mali's nomads

Pascal James Imperato

The Peul are a nomadic people, many of whom live with their herds of goats, sheep and cattle in the heart of West Africa, in the great inland delta of the Niger. The inland delta is one of those unusual topographic formations which the doubtful must see before they will accept that it really exists in a country as arid as Mali. It is a complex zone of sixty thousand square miles composed of vast plains, seasonal swamps, rivers, ponds and lakes.

During the rainy season, it is a refreshing panorama of blues and greens in which idle lakes reflect the group flights of white egrets and rivers twist with grace and silence into splendid horizons. There is an uplifting breeze in the air, an endless view of tall green grass swaying against a clear blue sky like the ripples of a calm sea and the deep reflective

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Pascal James Imperato, M.D. is presently First Deputy Health Commissioner of New York City and Assistant Clinical Professor of Medicine and Public Health at Cornell University Medical College. A specialist in tropical diseases and preventive medicine, he worked for six years in both East and West Africa and in South America developing communicable disease control programmes. The photos are by Dr. Imperato.

A Peul nomad with a herd of sheep and goats. About 400,000 Peul live in the inland delta of the Niger and each year travel traditional paths of 200 to 400 miles.

sense that you are in the midst of some magnificent and overpowering creation which is eternal.

In the dry season, the Niger River falls, the water on the flood plains dries up and in place of a great swamp is a dry prairie, the largest grazing range in West Africa. The water recedes in a centripedal fashion so that the last areas under water are those closest to the river.

Nature's seasonal symphony long ago shaped man's habits in the inland delta. When the river begins to fall, the itinerant Bozo fishermen ride the lowering crest in search of migrating fish and the Peul herdsmen come down into the plains from the high rocky Bandiagara Plateau and the dry northern *sahel* with their herds of humped-backed cattle, goats and sheep. The *sahel* is a strip of semi-desert immediately south of the Sahara, its name coming from the Arabic *sahil,* meaning "shore," or "borderland."

There are about 400,000 Peul living in the inland delta and its periphery. The Peul clans move into the delta in fifteen principal groups along traditionally established paths called *burti.* On the average, the *burti* are a hundred miles long, but a few are more than two hundred miles long. Thus, in the annual cycle, most clans cover two hundred miles and some, four hundred. The actual distances walked, however, by both cattle and men are considerably longer because as they move forward, they frequently swing off the *burti* in circle-like fashion for a dozen miles or so, enabling them to take advantage of all the pastureland in the immediate vicinity of the path.

Medical programme spurs nomad study

From 1967 to 1972, I studied the nomadic way of life of the Peul in order to plan comprehensive medical programmes for them. Initially we planned to deliver smallpox and measles vaccinations as part of a regional smallpox eradication/measles control programme. Early on, the striking characteristic about smallpox in Mali was its almost exclusive occurrence in the central part of the country among the Peul of the inland delta. Because the nomads had never been reached by the mobile health services of the country, most of them were unvaccinated. Thus, I realized that if a detailed study of life and human society among the Peul was not made, the battle against disease would be lost. For our health programme to succeed, we had to discover the basic characteristics of the society: how the Peul moved, their numbers and distribution, where they came from and where they went.

I began my study along the southeastern periphery of the inland delta. In the rainy season, from April through September, it is a high green land of rolling hills and deep valleys covered with fields of millet and cotton and accented with baobab monarchs and shea butter trees. When the rainy season ends, the main cattle herds are organized into convoys of up to 15,000 head, known as *egguirgol,*

The author spent five years in Mali studying the nomadic life of the Peul in order to plan comprehensive medical programmes for them, including smallpox and measles vaccinations. Because the nomads had never been reached by mobile health services, most of them were unvaccinated. Measles carries a shocking mortality rate of close to 50 per cent in rural West Africa.

which are supervised by the *amirou-nai,* or chiefs of the cattle. Each convoy is owned by a number of *were,* large camps of several extended families, each with several thousand head of cattle.

Convoys converge on the plains

Six major Peul clans move into the lower portion of the plains and nine into the upper portion. The convoys make the long slow march down the plateau through a hundred-mile belt of rich farmland toward the lower flood plains. At the same time similar convoys descend from the *sahel,* so that in effect there is a viselike convergence of nomads on the plains.

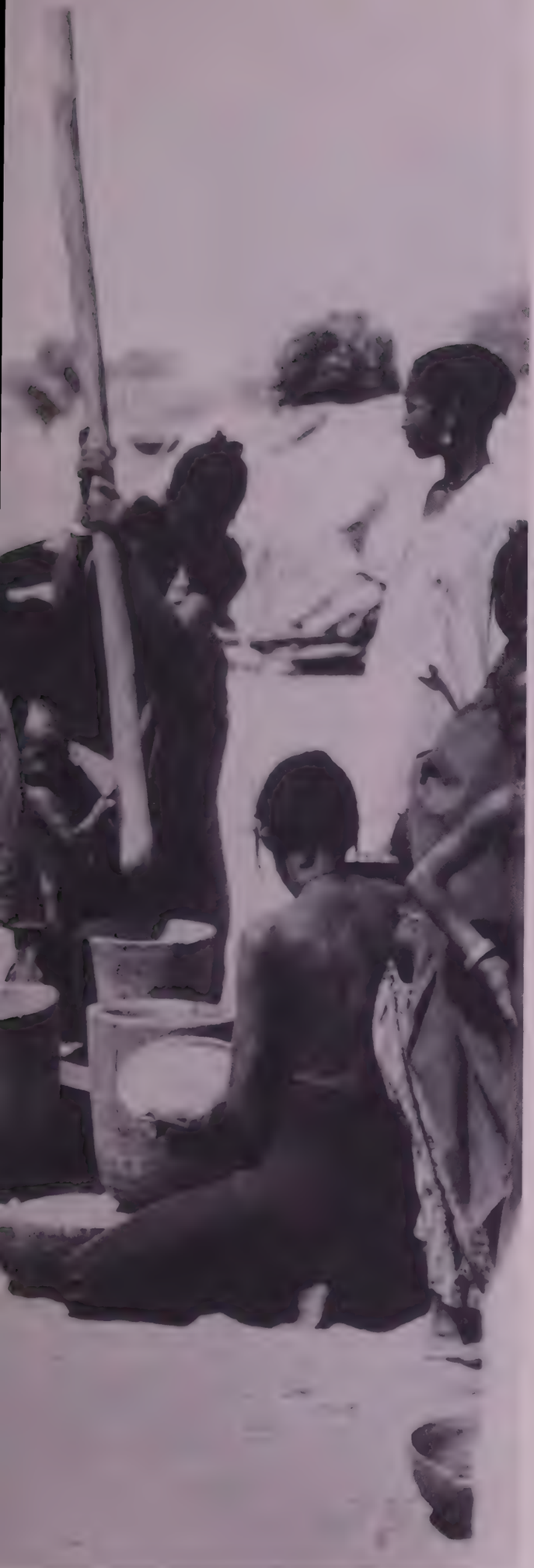
The forward advance has to be gauged according to the availability of grass and water on the plateau and by the state of the harvesting, which goes on at the same time or slightly before among the sedentary Bambara and Minianka farmers. The overwhelming consideration during this march is the optimal use of all available water and grass between the starting point and the final dry-season camps, which are either on the banks of the Niger or the Bani or on the shores of one of the great lakes of the delta.

Children are highly esteemed among the Peul. At first some parents were reluctant to accept the idea of measles vaccinations, but when they discovered that measles hit only those children who had not been immunized, they were convinced of the value of this preventive health measure.

By common agreement between the herdsmen and the farmers, the herds pass over the fields of the sedentary villages after the harvest is in. The cattle graze on the fields, thereby fertilizing them, for which the farmers pay the herdsmen with millet and corn. Temporary camps are established year after year on virtually the same fields and thus an intimate social and economic relationship is established between families of nomads and sedentary farmers.

In some areas, farmers can predict with considerable accuracy the approximate time that "their nomads" will arrive. Disputes arise if the march begins before the harvest is in,

Peul women pounding millet in a nomad camp where they ar temporarily settled. Unlike the sedentaries of the world, security for the Peul does not lie in familiar surroundings, but in the herds and in moving with them.



a situation common during those years when insufficient rainfall prolongs the growing season and forces the nomads to move onto the plains early, well before the harvest.

The cattle rule their masters

For the Peul, cattle are the centre of life; the needs of these animals shape and determine their way of life. The owner is the servant of the possession. His entire life is a cycle of finding water and grass for his cattle and of drinking their milk. Because of this, many say that the Peul are a nonproductive people, their lives a pattern of hard work and inefficiency in which only the cattle grow fat and healthy

The Peul are an extremely handsome people, self-sufficient and proud. They have little desire for education, health, social services and the material inducements of the modern world. But new values and ideas can be accepted. The success of the measles campaign opened the door to other health services.

and enjoy the comforts of life.

Self-sufficient and proud, the Peul have little desire for education, health, social services and the material inducements of the modern world. For them cattle are wealth, the bank account and real estate all rolled into one. Marriages are contracted with cattle, disputes settled, debts paid, gifts made and political alliances established. The ultimate achievement of men is to own cattle and to be good herdsmen.

Vaccination results convince Peul

The Peul accepted what we were offering, albeit with reluctance. Many fled from the six mobile medical teams which had been sent into the inland delta to vaccinate them. Others refused to come out of their huts to be vaccinated. But at the end of a year of hard and patient work, about 70 per cent of the Peul nomads had been immunized.

They were never fully convinced of the value of what we were offering until measles hit those children who had not been immunized. Measles carries a shocking mortality rate of close to fifty per cent in rural West Africa. The spectre of measles affecting only those children who had not been vaccinated carried an unforgettable message in a world where children are so highly esteemed.

When cholera broke out in Mali a year later in epidemic proportions, it required only three months for mobile medical teams to reach the same population which had taken a year to reach before. The Peul sought out the immunization teams and in so doing demonstrated that they appreciated the value now of what was being offered.

When we first brought mobile medical services to the Peul, the average cost of a single vaccination was elevenfold more than for their sedentary agricultural neighbours. This was because of the greater distances which had to be traveled to reach small groups of people, requiring large amounts of gasoline and the greater number of man-hours needed to convince nomads to be vaccinated. Later on, the cost fell to about a third of this original level.

It is a fallacy to believe that nomads will not absorb changes into their traditional lifestyle. It was gratifying to observe how they ultimately appreciated the value of measles immunizations. This opened the door to the acceptance of other health services. Many had

The ultimate achievement of Peul men is to own cattle and to be good herdsmen. For them cattle are wealth, the bank account and real estate all rolled into one.

claimed that this was not possible, and so no one ever tried. It is also a fallacy to believe that nomads want to remain nomads, no matter what. As studies performed during the recent *sahel* drought in West Africa have shown, nomads will abandon their traditional subsistence mode of life if they are offered a better option. Making them sedentary subsistence farmers is not a better option. Nomads are not reluctant to change their life pattern when their options within it have been reduced by natural disaster such as a drought.

Blending new ideas with Peul values

The Peul are often viewed by those of us who are the sedentaries of the world, as a rootless people, who develop no attachments to physical surroundings. We develop attachments to places and find security in familiar surroundings. And so it is hard for us to come to grips with the nomads incessant search for water and grass. But for the nomads, security at present does not lie in familiar surroundings, but in the herds and in moving with them. Such a life pattern does not easily accommodate education, social services and health care. But much can be done to integrate such elements into the lives of nomads.

Health services must be geared to priorities as they see them. We immunized their children against measles—the most feared childhood disease. The results were dramatic. Perhaps education must be geared in a like manner, not towards the formal structures now in existence but towards the teaching of ideas and the transfer of modern knowledge which can be grafted onto the traditional base and integrated into the lives of the nomads. They could be taught improved land management and animal husbandry, in terms they could understand.

The cyclical nature of the rising and falling of the Niger River has determined for centuries when, where and what men will do in the inland delta. It all begins with a drop of water on the far away slopes of the highlands of Guinea. A river rises and overflows its banks, grass flourishes, the waters recede and the Peul herdsmen descend onto the flood plains. In so doing, they have developed a plan for land use that no one has yet been able to better—a plan which provides them not just survival but prosperity. A radical change in this life pattern may not be possible at present. But as our experience has shown, new values and ideas can be introduced and can succeed. ■

A precious piece of land for India's landless labourers

Trevor Drieberg

In the overcrowded Indian village, to own a strip of land, however small, is the consuming ambition of the landless labourer.

More than 47 million of these rootless ones live in 560,000 villages. Their life is one long drudgery, hedged in by constant insecurity.

According to the national census of 1971, farm labourers account for 38 per cent of the 125.5 million people engaged in agriculture in India.

Trevor Drieberg is a free-lance Indian writer and New Delhi correspondent for the Melbourne Herald (Australia).

About half of them own no land. The rest have less than half an acre.

But the glimmerings of a new life are dawning for most of them. The 20-point Government programme announced in July 1975, pledges each landless family a site for a cottage it can call its own.

This is the take-off point for a series of

A landless labourer talks with a bank official about a loan to buy sheep. For millions of India's landless workers, life is a constant drudgery, moving from hovel to hovel. The children suffer most because this rootless existence makes any sustained health care or education impossible.
(ICEF 7253/Drieberg)

reforms aimed at giving the landless on the bottommost rung of rural society a sense of belonging to the village community and of sharing the benefits of planned socio-economic growth.

Hazards for the growing child

For them economic degradation goes hand-in-hand with social discrimination, for the vast bulk of the landless are *achuts*, untouchables, outcasts from society.

In popular terms, they are known as Harijans. They live below what Government statisticians describe as the "poverty" line, earning less than Rs. 40 (US$ 4.5) each a month.

At that level they have no standard of

For the first time in their lives, these landless labourers seated outside the village council headquarters have received the right to a piece of land. In 1975, the Government pledged each landless family a site for a home. (ICEF 7252/Drieberg)

living to preserve, and so they have little or no interest in family planning. For a family of five or six, or even more, can starve as easily as one or two.

Indeed, the more hands there are to work, the more such families can scrape together for a bare living. As deaths from sickness are very common in early childhood and infancy, it is safer for landless workers to reproduce without constraint.

For the children of such families, schooling is an unnecessary luxury. They must be put to work as soon as they can move about freely on their feet so that they can add to the meagre family earnings.

The disruptive, unpredictable nature of their existence makes any sustained educational efforts or adequate health care impossible for the children of landless labourers. In addition to the obvious physical hardships caused by their unabated poverty and health hazards, there is the subtle but harmful psychological effect of being without roots. Being constantly on the move—shifting from hovel to hovel—contributes little to the sense of security that is vital to a growing child.

Victims of disaster

When drought and flood scourged several parts of the country in 1973 and 1974, the worst-hit segment of the village population was hired labour. These people survived on emergency relief the Government provided at a time large quantities of grain had to be imported to make up for the losses in domestic harvests.

Late in 1974, the Government sought UNICEF aid for a special programme to meet the urgent

needs of pre-school children, pregnant women and nursing mothers in the worst-hit areas. UNICEF provided vital food, medicines and clothing as part of a comprehensive package of child relief aid which included supplementary foods, special nutrition for seriously undernourished children, basic drugs and medical care, blankets and clothing, pure drinking water, and health and nutrition training.

A piece of paper

To millions of landless throughout the country, a Government document is today their most prized possession. In the southern state of Andhra Pradesh, which I visited recently, they call it a *patta* in the regional language, Telugu.

This piece of paper gives a labourer freehold rights to 140 square yards of land to build a hut, with a little space to spare to grow some vegetables for his family and fodder for a milking buffalo or cow.

Ankshapur, one of the villages I visited, is about 30 kilometres from Hyderabad, off the state highway leading northeast to Warangal. It stands in a bleak plateau dotted with huge boulders of black granite.

I asked a farmer to show me his *patta*. He went into his hut and returned with a cylindrical object wrapped in a scrap of red cloth.

He unwound the cloth carefully in the presence of the *sarpanch* (elected head of the local administration) and practically the whole assembled village and produced a sheet of white paper.

He smoothed it out carefully and presented it to me. It was the document which gave him title to his new homestead plot.

This precious Government document gives the proud owner title to 140 square yards of land to build a hut with a little space to grow some vegetables for his family and fodder for a milking buffalo or cow.
(ICEF 7255/Drieberg)

Landless labourers show the upgraded Murrah buffaloes which they have purchased with bank loans. As part of the national programme to raise living standards for landless workers, small and marginal farmers, the Government-owned Canara Bank is investing heavily in dairying in the villages. (ICEF 7256/Drieberg)

Ankshapur is one of a cluster of 11 villages which the Government-owned Canara Bank has "adopted" for integrated socio-economic development under the national programme of uplift for small and marginal farmers and landless workers.

So far, the state governments have distributed nearly 7 million *pattas* to landless farm workers throughout the country.

In some villages, land belonging to the *panchayat* (elected local council) is distributed for this purpose. As none was available at Ankshapur, a sloping, gravelly block of five acres has been acquired from the big landowners.

One of the bank's biggest channels of investment in the village is dairying, launched in November 1975. Landless farmers are encouraged to breed milking buffaloes and cows, whose produce they sell to the state milk development corporation.

The buffaloes are upgraded Murrahs from North India, the cows crosses of imported Jerseys, Red Danes and Friesians.

The bank buys the animals for the farmers. It advances loans for buying cattle feed and fodder in the first two months of their dairying activities.

It also plans to introduce a system of livestock insurance to protect farmers against loss of their stock through disease.

The next step

The next step in the programme is to give the landless a share of agricultural land. Under the latest laws relating to farm holdings, ceilings have been fixed for different types of

land, and the surplus is to be divided among those who own none.

On this basis, the Government expects to distribute 3.82 million acres of land. So far 254,000 acres have been acquired, and 90,000 have actually been parcelled out to 52,000 heads of families.

The big farmers, who stand to lose from the new law on ceilings, have not taken kindly to the Government's plans. They have filed thousands of petitions in law courts to block its operation, although the Indian constitution has been amended to bar courts from entertaining suits about land ceilings.

To evade the limitation on individual holdings, some landowners have divorced their wives so that they can nominally hand over their surplus land to them, according to the Revenue Minister of the state of Bihar, Ram Jaipal Singh.

Yet these are only temporary holdups of a process that is slowly bringing social justice to the village, steeped in feudal prejudice.

Owning a piece of land gives a man self-respect in this stratified, caste-ridden rural structure belonging to the past. Today, the owner of a *patta* stands confidently on his own two feet, with his head held high. ■

Life is especially hard for the women and children of landless families. Here they are carrying rubble from a patch of ground being levelled for cultivation. But a series of reforms are now being aimed at giving the landless a sense of belonging to the village community and of sharing the benefits of planned socio-economic growth. (ICEF 7254/Drieberg)

farmers and

When 6,000 nomads were first brought to Brava, a fishing village, they had never seen such a vast, frightening body of water as the rolling Indian Ocean. But the men soon learned to swim and fish and surprised everyone at how well they took to the sea and their new life. (ICEF 7257/William Campbell)

fishermen... a new way of life for Somalia's nomads

William Campbell

Somalia is a land of nomads. For generations the Somali people have wandered over the rangelands and plains of the horn-shaped point of land on Africa's north-east corner coping with a harsh climate and hostile land.

The life of a Somali nomad is a life of constant change. His survival and status depend on his precious herds of cattle, goats and camels, and the herds' survival depends on the rangelands and the water. When the condition of the range changes, the nomad must move to another grazing area and another water hole.

For centuries there has been a balance between the Somali nomads and the rangeland on which they live. Most of the areas that were grazed and abandoned by the livestock of one family had time to regenerate before another family arrived. The nomads moved from grazing area to grazing area like pieces on a backgammon board. There was a harmonic balance between the nomads and the land.

Man and his land: the balance waivers

In recent years, however, the balance has been disrupted. The nomadic population has drastically increased and so has the number of livestock. Areas that were once untouched by the nomads have been claimed for grazing.

Based in UNICEF's Nairobi Office, photojournalist William Campbell is a Programme Associate in the Communications and Information Service. During 1975 he made three trips to Somalia.

The rangeland is systematically being destroyed by overgrazing in what many experts believe is a true Malthusian disaster.

Then the rains began to fail. In the early 70's they were short and erratic and finally, in 1974, they failed to come at all. The rangeland was already overgrazed, and without rain much of the land quickly turned into desert. Desperate nomads spent months wandering across the northern range in search of grass and water for their precious herds. Their camels ate the last green leaves from the thorn bushes, and their goats tore grass roots from the ground in a desperate search for food. Soon there was nothing left, and the proud Somali nomads watched as their animals died in the swirling dust that was once a sparse, but productive rangeland.

"I just don't understand," an old Somali camel trader told a relief worker when he arrived in one of Somalia's northern towns. "The rains have failed before, but we were always able to move to another grazing area and another water hole. This year was different. The water holes were drying up, and the best grazing lands were turning to dust. In twenty years I only lost a few camels because of drought. This year I lost my whole herd in three months. There is no camel milk for my children. They are all sick. It's all over . . ."

Relief camps for drought victims

Thousands of nomad families poured into established towns in northern Somalia during the last months of 1974. The men and women were tired and desperate. The children were dying from dehydration. They all told the same story. "Our camels and goats are all dead. We are hungry and sick. We are finished."

The Somali Government quickly established relief camps for the drought victims, and President Siad Barre made an urgent appeal to

A trained nurse and a rural health worker hold a small clinic for children and mothers at the Brava settlement. At the new fishing and farming settlements, the nomads are enjoying the benefits of better health care, water wells and nursery schools. (ICEF 7258/W. Campbell)

international organizations for supplies and food to feed the destitute nomads.

By the end of February 1975, over 200,000 nomads had taken refuge in the well-organized relief camps. They brought their huts, water jugs and cooking pots. Their children, many of them dying of dehydration, received medical treatment and special feeding. But for many it was too late. Over 16,000 nomads, most of them children under five, died in the relief camps.

Most of the nomads in the camps looked at their stay as only a temporary refuge from bad times. "The rains will come," one young boy told his friend. "The grass will grow again, and we will all go back to the range."

Life in the relief camps was a new experience for most of the nomads. Never before had they been with so many people. Some even began to enjoy the camp life. Children, as well as adults, attended literacy classes. There were orientation classes dealing with Somalia's new "Scientific Socialism". At night they sang songs and reminisced about the good times.

But for most, the dream of returning to their traditional life as wanderers was mere wishful thinking. Government and United Nations surveys of the drought-ravaged rangeland reported that the area could not support the return of all the nomads in the camps. "The present drought," said a UN agency report, "is not something from which recovery will take place with the first rain, but a situation which will require long and careful planning and implementation if the land is ever to be returned to production."

Need for alternatives to nomadic life

What could the nomads in the camps do? Where could they go? The Government and relief officials began to ponder the question. They obviously could not remain in the camps until the range regenerated. It might take years for the range to return to a full productive state, and the Somali Government would deplete most of its foreign reserves supporting the nomads in the camps.

The Government decided that the only reasonable solution was to relocate the majority of the nomads in the relief camps to areas where they could start a new life. The country's southern river delta area was available for agricultural development, and good fishing grounds lay off the country's 1,800 kms. of coastline.

Nomad men and women at the Sablale resettlement area in southern Somalia spend their mornings learning how to farm. Over 30,000 nomads live in Sablale. It is now one of the largest cities in Somalia. (ICEF 7259/W. Campbell)

"The nomads in the camps must support themselves," a Government spokesman reported. "They will have to try a new life as farmers and fishermen. There is simply no other way."

But the task of transporting such large numbers of families from relief camps in the north to resettlement areas in the south was a problem that was hard to face. Over 2,000 kms. of wasted rangeland stood between the northern camps and the proposed resettlement areas. There were few real roads.

"Impossible," a western observer remarked. "The only way that you could move the camps to the south would be with aircraft."

So the Somali Government borrowed 10

huge cargo planes from the USSR and took to the air. By the end of August they had moved 120,000 nomads from the northern relief camps to three agricultural resettlement areas along the Wabi-Shebele and Juba Rivers and to several fishing villages along the southern coast.

Making the transition easier

The nomads involved had plenty of time to think about the trip. Before the move, relief workers and party officials held orientation meetings to brief the refugees on the life of farmers and fishermen. The children, like all children, were open to the idea. The men, however, were suspicious. They had always regarded themselves as superior to farmers and fishermen. Many deserted before the airlift began.

Even those who chose to make the move were stunned when they arrived in the south. "Is this still Somali land?" a young nomad girl asked a Red Crescent volunteer as she walked from the plane. "It's so cold and wet."

The transition, drastic as it was, was made easier by the approach used by the Somali relief officials. Families were kept together, and the nomads were allowed to bring all their belongings including their straw-matting huts. When the planes arrived on the southern coast, the nomads were met by Somali men, women and children from nearby towns singing, "Welcome friends. We've been waiting for you."

The resettlement areas are large and have quickly taken the shape of small cities. The nomads are encouraged to participate in the running of the new towns. Each new resettlement area is divided into administrative sections. The nomads in each section elect representatives to sit with Government officials on committees that shape their future. They have chosen representatives from their sections to be trained as traditional midwives and paramedical personnel.

Living conditions in the new settlements are much better than in the old relief camps. Water wells have been drilled, street lighting installed, and larger, better-equipped tented hospitals have been erected. There are new nursery schools for the younger children and sports for the older boys and girls.

Learning to farm, learning to fish

The nomad families have gradually learned to adapt their traditional values to their new

surroundings. Their daily chores are carried out in the same fashion as when they were on the range. Mothers still do all the cooking; the children still fetch the water.

It is the daily activities of the men that differ drastically from the days when they roamed the northern range. In the agricultural settlement they are involved in rehabilitation programmes aimed at making them successful communal farmers. On the coast the nomad men are being trained to become off-shore fishermen.

At Sablale, one of the two resettlement areas

Fishing extension workers at the Brava fisheries centre help nomads weigh a large fish they caught during a morning fishing expedition. The nomads are learning how to process the fish in the training programme organized by the Somali Government to help rehabilitate nomads from the drought-striken northern areas. (ICEF 7260/W. Campbell)

located on the Wabi-Shebele River, thousands of nomad men and women march into the fields each morning to learn the farming trade. The fields have been levelled, and irrigation canals have been dug by heavy machinery. The nomads are learning the basics—tilling and sowing. A special detachment of men work repairing and cleaning the irrigation canals that bring the water from the river to the newly planted fields.

Fifty miles east of Sablale is Brava, a small coastal village that for over 200 years has been the home of a small group of Somali fishermen. Until recently, fishermen were regarded as the lowest individuals in Somalia's nomadic social structure. The town of Brava had little to do with the nomads, and the nomads tried their best to avoid Brava. In late August an interesting social interaction began: 6,000 nomads arrived in Brava to learn how to fish.

A challenge and a surprise

The nomads came with their mat huts and camel skins and began to construct a new addition to the Brava community. The Brava

fishermen watched the nomads, and the nomads watched the sea. It was a stand-off.

Many of the nomad men stared for hours at the rolling Indian Ocean. They had never seen such a vast body of water. It was frightening and challenging.

Soon a common denominator between the nomads and the sea appeared on the scene—fish. When the mothers went to collect their weekly ration of food, they were given a bit of fresh fish to try with their rice. It was a strange food to most, but those who tried it liked it, and before long fish was in demand.

The nomads began to mingle with their new neighbours, and they were soon literally up to their necks in the Indian Ocean learning how to swim. Every morning a small number of nomad men walked from the settlement to the beach for instruction in swimming, net-throwing, boat-handling, and seamanship. Small groups accompanied the local fishermen as they went out on the open sea. By the end of December, over 1,200 nomads had finished the training course and were ready for a new life as fishermen.

Most of the Somali and international relief officials involved in the fishing programme were surprised at how well the nomads took to the sea. "We were expecting the worst," a fishing expert from the Food and Agriculture Organization (FAO) said. "But the nomads surprised us all."

UNICEF aid to Somalia:
First emergency relief, now long-ranging efforts

When the emergency first hit northern Somalia, UNICEF was one of the many international organizations and individual governments that responded to the Government's early request for emergency aid. UNICEF airlifted tons of drugs, medical supplies, and special foods to Somalia for the mothers and children in the northern relief camps.

Now UNICEF is providing aid to help in the rehabilitation, settlement and training of the drought-affected nomadic population. Particular attention will be given to the health and nutritional status of children and their well-being through basic education and an adequate preparation for a productive life.

Among some of the specific forms of aid being supplied by UNICEF are pipes and pumps for building clean water systems, drugs and medical equipment for expanded health services and teaching materials for the resettlement schools. UNICEF is also providing aid to help train young people selected from the communities themselves to serve as teachers and health workers.

"Goodbye camels and hello fish"

The Somali Government has ordered 100 new fishing boats for the new Brava fishermen. Until they arrive, the nomads take turns using the available boats for their daily fishing expeditions. They leave each morning at dawn and return at noon with their catch of shark, tuna, and other assorted fish. They process these fish at a new processing plant near the settlement.

The sea is the new hunting ground for the Brava nomads. They sit for hours and listen to the old Brava fishermen tell sea tales of how the sharks have attacked boats and devoured Somali fishermen. The nomads already have their own scary shark stories to tell.

One old nomad pulled a large shark jaw over his head and winked with a childish grin at a United Nations expert. "It's the lion of the sea," he yelled in Somali.

The nomads in the new settlement areas in the south are accepting their new lives with a proud dignity that is characteristic of the Somali nomad. They are working hard in the fields and doing well on the sea. The children are making the best of their new situation. They are spending time in school and making new friends. As one young Somali father put it, "It was goodbye camels and hello fish. It's not as bad as we thought it would be."

Rangeland conservation underway

The majority of Somalia's nomads are still on the range. Two-thirds of Somalia's 3.5 million population are nomads and they look at the effects of the recent northern drought as a warning. Rangeland rehabilitation programmes are underway throughout the country in an attempt to revive the land ravaged by the drought and to control overgrazing on the land that survived. Rangeland experts have started a rangeland conservation school in northern Somalia, and extension workers are roaming the bush informing the nomads about the importance of rangeland control.

"The rangeland and the nomads are one," an extension worker explained. "Without the range the nomads will die. They must realize the problem and learn to treat the rangeland with respect. It's hard for the old men to understand. But the children understand, they see the problem. The nomad child is our new hope." ■

Two of the growing numbers of Brazilians who have immigrated to neighbouring Paraguay in recent years, attracted by the cheap, rich, virgin land which Paraguay has opened up to colonists. (ICEF 7261/A. Bono)

NEW LANDS, NEW LIFE, IN PARAGUAY

Agostino Bono

"This is a paradise. The land is good. If a Brazilian can't get ahead here, he can't get ahead anywhere."

Free-lance journalist, Agostino Bono, who lives in Buenos Aires, visited several colonies in Paraguay where Brazilian immigrants, attracted by land opportunities, have come to build a new life for themselves.

As he talked, Clemente Josef Pestana waved his hand indicating the expanse of land he has been farming for the last year. His broad smile showed a missing row of front teeth.

"This is virgin land. It is much richer and cheaper than the land in Brazil," he said.

Pestana is one of the growing number of Brazilian immigrants who have been swarming into neighbouring Paraguay in recent years as

Life is not easy for the colonists. The men and women labour long and hard and suffer many deprivations. The population influx is growing so fast that medical, education, transportation and other public services cannot keep pace with the needs of the people. But parents look forward to a better life for themselves and their children and are willing to work for it. UNICEF-aided activities in the Alto Parana area include health training, environmental sanitation and child nutrition.

(Photos by Agostino Bono. *Right:* ICEF 7262 *Left:* ICEF 7263)

colonists. This has been the result of Paraguayan efforts to open up the virgin forest lands on its side of the Alto Parana River which forms a natural border between the two South American countries.

Paraguay's twofold aim is to take advantage of the high export value of the timber and then to put the land under the plow, substantially increasing national agrarian output. Most of the Paraguayan colonist projects are composed of Paraguayans, but as there is no discrimination against foreigners, Brazilians have been crossing the borders in increasing numbers.

Cheaper land attracts colonists

"The land is about eight times cheaper here than in Brazil," said Pestana. He and his friend, Antonio Rodriguez, currently rent their land, paying 40 per cent of their harvest to the owner, a Brazilian, who bought the virgin land and has been recruiting his countrymen to work the land as either renters or purchasers of specific tracts.

Pestana said the farming has been quite good so far. By next year, the two Brazilians will have saved enough money to buy their own land.

"We'll buy the land as partners," said Rodriguez. They have their eyes on some virgin land which costs 5,000 cruzeiros (Brazilian currency) a hectare (2.7 acres). The sum is equivalent to US $600.00.

Besides rich soil, the colonists are aided by the tropical and rainy climate which allows for three major harvests a year. Rodriguez and Pestana grow rice, corn, soy beans and mint.

More people, more problems

The influx of the people into the area, however, is starting to cause problems as the population is growing much faster than the ability to build the necessary infrastructure for providing medical, educational, transportation and other public services and to spur economic activity.

Of Paraguay's 2.3 million population, the 260,000 people in the Alto Parana region endure especially difficult living conditions. Infant mortality, for example, is 152.6 per 1,000 live births as compared with the national average of 102.5. Illiteracy in the area is 32 to 40 per cent, compared with the national average of 26 per cent. No locality is self-sufficient in

providing potable water for its inhabitants. The crop merchandising system is deficient. Colonists are able to reach the main cities only by dirt roads which become impassable after the numerous heavy rains, isolating areas for days. Few colonies have a school or medical station.

"We have a drug store, but no doctor or medical post," said Pestana, referring to his colony of Prykyry. People with a serious illness must drive for at least two hours to reach the closest city with medical facilities.

"We have a private school run by two women, but our children have to pay to get in. Many parents with a lot of kids can't afford it," said Pestana. He has six children. Rodriguez has seven.

Compounding the problem is the growing number of Brazilians with their different language, customs and culture. In 1962, the region's Brazilian population was 1,190. By 1969, it was 10,743. Since then it has jumped to over 40,000.

Paraguayan Government studies show that 86 per cent of the Brazilians speak only their native tongue of Portuguese, while the main Paraguayan languages are Spanish and Guarani. This, for instance, puts an added strain on educational plans which have to incorporate another language.

The heavy immigration also presents a health threat as Brazilians may be bringing diseases unknown to Paraguayans and, in turn, may find themselves susceptible to diseases unknown in their native land. Either situation presents the hazard of an epidemic as the people lack protective anti-bodies to fight the potential diseases.

Cultural integration a key priority

Paraguayan planning officials are aware of the problems, including the need to culturally integrate the new immigrants into national life.

"We are Paraguayans now," said Rodriguez. "This year I had a son born here." Some 53 per cent of the Brazilians say they have no plans to return. Currently, though, many live in colonies, such as Prykyry, which are exclusively Brazilian. Few colonies are integrated.

Paraguayan officials praise the hard-working nature of the Brazilians and consider this a valuable contribution to national life. They quickly add that Paraguayan culture has much to offer the Brazilians. Cultural integration is a key priority of the National Office of Social Progress responsible for formulating plans for the Alto Parana.

Help from others, hope for the future

In executing plans, Paraguay counts on support from international agencies, such as the World Bank and the Inter-American Development Bank.

UNICEF has approved a three-year $600,000 Paraguayan programme through 1977, mostly for the Alto Parana. A main objective is health training for people living in the colonies. People are already being trained as midwives, dental assistants and paramedics to operate health clinics. Other UNICEF-aided activities include environmental sanitation, child nutrition and leadership training.

Although the problems are large, Paraguayan officials point to past experiences with colonists to show that problems can be managed.

In the much older colony of Juan M. Frutas, 65-year-old Eloyo Escobar enjoys an active retirement on his farm. Originally from Paraguay, he moved here in 1968 after retiring as the foreman of a large ranch. On afternoons, between sips of yerba mate (herb tea), he entertains guests by telling how he gets up with the dawn to tend his milking cows and cotton crop. The farm provides a comfortable living for himself, his wife and their 10 children.

Juan M. Frutas, not located in the Alto Parana, is closer to the capital city of Asunción. It is only two miles from the paved road linking it to Asunción. A full-time health post is at the junction, meaning immediate health care is available only a short distance away. The downtown area gives the impression of a place that has already passed through its frontier stage and is about ready to declare itself a small city.

Paraguayans see this as a hopeful sign of what can happen in the Alto Parana as the infrastructures are developed to fulfill the needs of the colonists. Officials feel they are starting with a big advantage: rich soil and people willing to work it. ■

Bringing the Bedouins in from the Desert

Donald A. Allan

Haba Mastour has abandoned the nomadic life of his ancestors in Egypt's grim Western Desert and pitched his bedouin tents for good on a rocky hill near Marsa Matrouh overlooking the Mediterranean.

"I want my children to have an education. Where we lived before, there were no schools", Mastour explained after offering visitors coffee in his tattered tent. He pointed to a two-room stone schoolhouse a kilometer away, one of the few buildings visible between the brilliant turquoise sea's gleaming white dunes and the line of bare hills marking the desert's edge. "The school is why I chose this place to stay."

Education, health services and land reclaimed by water where cash crops can be grown are the lures that have brought about 40,000 of the 120,000 Egyptian bedouins in from the Western Desert to settle on the narrow 500-kilometer coastal strip between Alexandria and the Libyan border. Since 1960, the Egyptian General Authority for Desert Projects has spent $1.2 billion on land reclamation alone.

A fertile promise

A hundred miles south of Marsa Matrouh coast, plans have been drawn up by West German engineers to pipe Mediterranean water by gravity flow into the Qattara Depression, a

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Before becoming Chief of the Information Division in the UNICEF Office for Europe, Donald Allan was Regional Information Officer in UNICEF's Beirut Office. During one of his frequent trips to countries in the Middle East, he visited a Bedouin settlement in Marsa Matrouh in Egypt.

A bedouin father decides to change his way of life and settle down in one place in order to give his children the advantages that a nomadic life could never bring. (ICEF 7264/Donald Allan)

salt marsh below sea level. This flow would activate turbines generating more power than the Aswan Dam. And the "New Valley" project in West Central Egypt has tapped a vast underground fresh water pool believed to extend from Lake Chad into Libya and eastwards within 200 kilometers of the Nile. Thousands of poor Nile Valley Egyptians have already been settled on irrigated farms here.

The Marsa Matrouh project, however, was designed especially for the bedouins, who as a group had benefited least from Egyptian development and whose tribal territory along the Libyan border had political importance. Marsa Matrouh Governorate makes up nearly a third of Egypt's territory—most of it desert.

When the Government began "sedentarisation" efforts in Marsa Matrouh fifteen years ago, many officials in Cairo questioned whether the proud, independent bedouins could be persuaded to give up herding camels, sheep and goats from one oasis and grazing ground to another, as they have done for at least 600 years.

The Authority's success, however, has destroyed the myth that bedouins are wedded to their harsh desert life, according to Mounir Islam, the agency's representative in Marsa Matrouh. "Nomadism is a necessity when animals must be moved from range to range, according to the changing patterns of rainfall. When that necessity is removed, the nomads, like anyone else, are eager for a better life," Islam told UNICEF officers here recently to discuss UNICEF support of Government assistance programmes to bedouin mothers and children.

"In 1930 there were 500 acres of olives and barley cultivated in this area, all dependent on our 150-millimeters average annual rainfall," said Islam. "Now there are 250,000 cultivated acres, and this will be increased more than a third in our five-year development plan beginning in 1976. The two-thirds of the bedouin population still nomadic are now coming in faster than we can provide land, water, jobs and facilities for them."

Preserving the past

Old ways do not change quickly, however. Sheikh Yacoub Abdul Abdelmalek, leader of a

The chance to give their children an education, health services and land reclaimed by water where cash crops can be grown are among the attractions that have brought about 40,000 Egyptian bedouins in from the Western Desert to settle on the narrow coastal strip between Alexandria and the Libyan border. (ICEF 7265/Donald Allan)

bedouin tribe at Al Kasr, one of the oldest resettlement communities, has built a stone house for his two wives and eight children, but his goat-hair tent is pitched alongside it, and much of the year he prefers to eat and sleep there. The earth floor is covered with hand-woven tribal carpets and piled with cushions. The tent is lined with bright quilt-pattern hangings, which can be raised to let in the Mediterranean breeze. This transitional combination of houses and tents is a common sight here.

"When I was a boy, this was all desert," Sheikh Yacoub said, gesturing toward fields where olives, grapes, figs, almonds and barley were flourishing. "Now there is nothing I miss from the old days. Nothing at all."

Today all 650 families in Al Kasr belong to the local farm co-operative, one of 43 branches of the Central Co-operative in Marsa Matrouh. The co-operative, assisted by several organizations of the U.N. has organized credit and marketing services, sharing of farm machinery, and irrigation and drinking water projects. Training programmes to teach young bedouins modern farming, carpentry, machine repair, and office management are also underway.

Turning suspicion into trust

"When we began here in 1960," recalls Mounir Islam, "the bedouins were suspicious. They thought we intended to reclaim land for the Government and drive them off. Because they regard raising animals as the most respectable work for men, we first helped them control animal disease and provided fodder. When we brought in tractors, they tried to beat us at plowing with their bulls."

"By 1965 we started self-help programmes to build settlements and offered good wages," stated Islam. "Under a new land tenure law, settled bedouins acquired ownership of tribal lands they farmed. Tribal heads were named to the co-operative boards, maintaining the social structure. They asked for schools, hospitals and health centres, and we helped them. Now we are trusted."

Today, bedouin leaders want local agro-industries, such as new olive oil presses and facilities for grading wool and spinning yarn, to get a higher return on their products. With this in mind, the Desert Project foresees culling

Tribal chiefs believe family income could be increased if the home industry of rug weaving were modernized. They are also eager for equipment for clubs where girls can learn to sew and knit. UNICEF has proposed a three-year programme to increase its assistance in these and other fields. (ICEF 7266/Donald Allan)

Once all desert land there are now 250,000 cultivated acres where olives, grapes, figs, almonds and barley are flourishing. Girls are sorting olives in one of Marsa Matrouh's co-operatives. (ICEF 7267/D. Allan)

herds of sheep from about one million to 350,000 head to improve the breed, prevent overgrazing and produce fatter, more valuable animals.

Tribal chiefs also want help in expanding health, education and training services. Nema Yadem, a university-educated bedouin and head of the government's Marsa Matrouh Women's Organization, wants equipment for nurseries, day-care centres, and clubs where girls can learn to use sewing and knitting machines and attend nutrition and literacy classes. "The desert has shaped the bedouin character," Miss Yadem said. "We have worked hard to survive, and we will work even harder for a better future for our children."

Sheikh Abdel Latif, a member of the co-operative board, thinks family income could be increased in his tribe if the home industry of rug weaving were modernized. UNICEF has proposed a three-year, $296,000 programme to increase and expand its assistance in all these fields.

Roman relics: another resource for water

Much effort is also being made to develop water resources on the coastal strip, once a granary for ancient Rome. There are 9,000 "Roman" cisterns cut into the soft, calcareous sub-soil rock, such as the one of 7,000 cubic meters capacity at Bourg Al Arab. Pot fragments around these cisterns are evidence of a population that disappeared with the decline of the Roman empire. But centuries of neglect have allowed wells and irrigation channels to fill up with sand and earth to wash into the sea during the flash floods of spring.

Today the co-operatives are busy building dikes to check the run-off of water and soil. Some 500 ancient cisterns have been cleaned and restored to use. Rows of accacia and casuarina saplings have been planted to hold seashore dunes in place.

Beside the coastal road, a 300-kilometer ditch for a pipeline is being hacked in rock. At El Alamein it cuts between the British Commonwealth cemeteries and the monuments to Italian and German soldiers who fell in the desert battles of World War II. This pipeline will bring Nile water to Marsa Matrouh, now served by a seawater desalinisation plant no longer adequate for the desert capital's population of 16,000—a figure bound to grow as more and more bedouins hearken to the promise of a better life. ■

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UNICEF news

The Changing Family

UNICEF NEWS

Issue 89/1976/3
Editor: Miriam Miller
Design: Bernard P. Wolff

P.4 **Something Old, Something New in Today's Family.** Anthropologist *T. Scarlett Epstein* examines the impact rapid social change is having on families from different cultures and backgrounds. She calls for radical restructuring of the overall patterns of roles of men and women and of relevant values, attitudes and prestige ratings.

P.10 **The Filipino Family: Buffer and Catalyst in Modernization.** Family and kin closeness is an important, unchanging aspect of Filipino life. *Mary Hollnsteiner,* Director of the Institute of Philippine Culture, describes how today's pressures are testing the family's capacity to respond to the challenge of the seventies.

P.14 **The Brazilian Family: Pulled by Old Values . . . Pushed into New Ones.** Many rural Brazilians are moving to the cities and settling in slums. *Fay Haussman,* a free-lance writer and Brazil specialist, takes a look at how urban conditions are affecting men, women and children. She spells out some of the ways life can be improved.

P.17 **UNICEF at 30.** A four-page anniversary feature includes articles by *Lord Ritchie-Calder,* noted journalist and lecturer, *Kenneth J. Somanader* of Sri Lanka's Ministry of Defense and Foreign Affairs, and *John Balcomb,* Chief Communications and Information Service in UNICEF's Nairobi Office.

P.23 **Cartoons by Doug Brunner.**

P.24 **The Indian Family—Continuity and Change.** In India the modern family is a curious mixture of old and new concepts. *Manorama Moss,* a free-lance Indian writer, portrays family life in India today, touching upon the joint and extended family, the deference to parents and elders and wives to husbands, the dominance of men and the emerging of women.

P.29 **The Man's Role.** "Whether it is right or not, most of the decision makers in the developing world today happen to be men," according to *John Balcomb* in his analysis of the man's role in the family as well as in society as a whole. He stresses the importance of motivating the men if any new ideas are to receive acceptance in the family or community.

P.32 **Motherhood in a Changing World: The Case of Ghana.** How do today's Ghanaian women cope with their multiple responsibilities in the home and on the job? A glimpse into the lives of women from all segments of society—the elite, the middle class, the poor—is provided by *Christine Oppong* of the Institute of African Studies, University of Ghana.

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UNICEF News is published four times a year by the UNICEF Information Division, United Nations, New York. The yearly subscription rate is $6.00

United Nations Children's Fund, United Nations, New York, N. Y. 10017

ICEF 7327/Khopkar

COPING WITH CHANGE

The family is the basic unit in all societies regardless of cultural diversities. Families everywhere consist of men, women and children united by ties of kinship and mutual obligations. Within its capacity, the family is expected to meet the basic needs of its members for food, shelter and clothing, and to provide their intangible needs for affection and a sense of belonging. It helps to transmit from one generation to the next the traditions and the cultural, moral and spiritual values unique to each society. Inevitably, in each era there are changes, large or small, gradual or abrupt, which may alter or transform family patterns. Foremost among the forces influencing family life today is the rapid pace and nature of social change. First, the effect of national development is to change the economic, social and physical environment, possibly to open up new horizons and opportunities, certainly to pose new challenges for the family, if not to impose additional burdens on it. Second, development almost invariably involves adjustments within the family itself, in the roles and responsibilities of family members and in relationships among the generations. Because of their complete dependence on adults, children are the first to suffer or benefit from changes affecting the family. Throughout the developing world, the past few decades have witnessed dramatic changes. The gradual awakening of women to their rights and dignities, the rapid rate of urbanization, population pressures, increasing education and technology, are factors that are affecting the family in countless ways. Change is a continuing and inescapable reality in today's world. The following articles attempt to show how some families and individuals are coping with the many changes confronting them and how these changes, to a greater or lesser degree, bear on the well-being of children.

Something Old... Something

T. Scarlett Epstein

From time immemorial the physiology of reproduction and the need to care for young children have tied women to domestic activities and allocated to men the tasks of protecting women and children and providing for them. In their role of protectors men inevitably became, to a greater or lesser degree, the exclusive actors on the public stage. The different tasks assumed by men and women not only served to complement each other but helped to keep a harmonious balance in the family.

Most traditional societies have elaborate rituals which emphasize the distinctions between the male and female roles. In Africa, for example, many tribes have one set of age grades for men and another for women. Men and women are circumcised at special unisexual ceremonies from which the other sex is strictly excluded.

Many Melanesian tribes have special male cults whereby the young men aspire to pass through the various stages of initiation, while the women are convinced that the mere knowledge of, or contact with anything even remotely connected to this cult is extremely dangerous to them.

Purdha, the seclusion of Muslim women, confines them largely to their quarters from which they can venture out only if they are fully veiled and accompanied by a male protector. An upperclass woman in *purdha* must

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T. Scarlett Epstein, Professorial Fellow at the Institute of Development Studies, University of Sussex, is a development anthropologist who has done extensive fieldwork in Third World villages. Dr. Epstein is the author of several books dealing with the relationship between economic development and social change. She is presently directing a "Cross-cultural Study of Population Growth and Rural Poverty" and is in the process of organizing an "Action-oriented Study of the Role of Women in Rural Development".

lew...in Today's Family

From the beginning of time, the need to care for young children has tied women to domestic activities and allocated to men the tasks of protecting women and children and providing for them.
(ICEF 7330/Wolff)

not even be seen by a male doctor; a curtain separates patient from doctor.

Many more examples could be cited to show how societies ritualize the segregation of the male and female roles and how fundamental these differing yet complementary roles are to cultural evolution.

Male and female roles start early

From early childhood the female and male spheres are clearly delineated. Girls are trained in domestic duties such as cooking, fetching water and caring for younger siblings, while boys are initiated into male tasks such as the herding of cattle.

The strict segregation of boys and girls during their early training affords women the opportunity to exert control over their specific sphere of influence without envying men and their political roles. This separation of roles between the sexes has served not only as a convenient basis for specialization of tasks but is also seen as part of the order of the universe ordained by supernatural forces.

Any attempt by men or women to establish an overlap between male and female roles has been regarded as a threat to the order within society and punished accordingly. Many witch-hunts may be explained in terms of the accused woman having tried to break into the male sphere of activity. Emancipated women from developed countries often pity their sisters who live in traditional societies for having been brain-washed into accepting their "inferior" position as God-given.

In turn, many women in developing countries frequently pity Western women for having to live in chaotic societies where the sharp distinction between the sexual roles is lacking.

Upsetting the traditional balance

On the whole, this balance between male and female tasks worked reasonably well as long as the pace of socio-economic development was fairly slow. The introduction of formal education and the accompanying socio-

economic changes upset this traditional balance. It did so basically in two ways: by *pulling* or by *pushing* women away from their customarily defined roles.

Those few women who were fortunate enough to be able to get higher education began to take off into male orbits. They became politicians or professionals in many fields just like their male counterparts. The majority of this small female elite, particularly in some Asian countries, originates from the top socio-economic stratum where servants performed all the duties and helped to look after the family and home. Education provided these women with an opportunity to break out of their "Golden Cage".

Opportunities for the elite

The case of Mrs. Khan from Pakistan reflects such a movement. Her grandmother, who came from a wealthy landowning family was nine years old when she married and lived in strict *purdha* all her married life. Her mother, after receiving some education given by a tutor in her own home, got married shortly after reaching the age of puberty to a doctor and even though they moved to the city, she too led a life of female seclusion.

Mrs. Khan herself was educated in a convent school, married a doctor when she was 19 years old and lived in *purdha* until she went to England with her husband where they both attended university. Mrs. Khan trained as a social worker and is now employed as such in Pakistan. She ignores the traditional *purdha* regulations and has made sure that her two daughters also received higher education. One of them qualified as a doctor and the other as a social worker.

The impression that Mrs. Khan and her daughters give is that they are fully emancipated, yet even their lives display the legacy of the traditional segregation of the male and female roles. All the females in Mrs. Khan's genealogy had their husbands chosen for them by one or another of their male kin who arranged their marriages. Mrs. Khan confessed to me that she was terribly upset when she first set eyes on her husband at their wedding ceremony; for two weeks after she did not allow him to come anywhere near her. Since then, they have established good marital relations.

In this context Mrs. Khan keeps emphasizing that she recognizes obedience to her husband as one of the foremost duties of any Muslim wife and that she made sure her daughters followed this principle.

Extra burdens for poor rural woman

Unlike the elite Muslim women who, over a period of several generations, were *pulled* out of their traditionally assigned roles as a result of their educational opportunities, many of the poorest rural women were *pushed* out of their customary lives. Circumstances beyond their control forced them to take over what

In Muslim society, *Purdha*, the seclusion of women, confines them largely to their quarters from which they may venture out only if accompanied by a male protector. Obedience to their husbands is considered one of the foremost duties by most Muslim wives. (Photo by Bernard Wolff)

used to be predominantly male tasks. Lower female wage rates made women attractive substitutes for male workers, as happened in Kempamma's case, or their menfolk migrated to urban centres in search of paid employment, as happened in Mama Kiganya's family.

Wife obediently assumes new tasks

Kempamma, who lives in a South Indian village, is about 30 years old and lives with Timmaya, her husband, and their four children ranging from one to thirteen years of age. Two other children she bore died in infancy. The family is landless and depends on wages for its livelihood.

Until about six years ago, prior to the introduction of irrigation in their village, Timmaya was the family's chief income earner. Kempamma was then mainly occupied with looking after their home and small children; she worked as a casual labourer only a few days in the year when their landowning patron required her to help weed and harvest his millet

Young children carrying still younger siblings on their backs is a common sight throughout the developing world. Overworked mothers depend upon their children to care for their younger siblings. (ICEF 7331/Danois)

crop. Daily female wage rates for casual agricultural labourers were, and still are, about half those which men are paid. Since irrigation enabled farmers to grow paddy and sugarcane, which involve more labour intensive cultivation than millet, Timmaya's patrons prefer to employ more female than male labour so as to save on wages. This means that Kempamma has become the main provider for her family, while Timmaya gets employment only a few days in the year and mopes around for the rest of the time.

It never occurs to him that he might now relieve his wife of at least some of her household chores. Kempamma has to fetch water early in the morning before she reports to her employer and performs all the other household duties after finishing her agricultural work. The only help she gets comes from her two daughters aged eight and five.

Timmaya often shouts at his wife when she does not manage to let him have his food just when he wants it and she, having learnt to be an obedient wife, never answers him back. Timmaya claims that it is bad enough not to be able to feed his family and to have to depend on his wife's earnings without making himself subject to the ridicule of his mates for performing what are generally regarded as female tasks. His dominance over his wife seems to be the only source of self-respect left to him. No longer do the respective tasks of Kempamma and Timmaya outside the home complement each other harmoniously as in the past; however, as far as their domestic arrangements go, the old segregation of sexual roles continues unchanged.

Mama Kiganya changes family roles

There are many women who, like Kempamma, accept without complaint the additional burden that their new tasks put on them, but there are also others, like Mama Kiganya, who not only take on radically changed roles, but altogether restructure their family organization.

Mama Kiganya is a Kikuyu who used to live in Kenya's large rural sector. In 1960 when she had six children under 13, her husband abandoned her. He had received a gratuity from a firm in Nairobi with which he decided to move to Mombassa. After two years of trying her best to feed and educate her children on a small farm, she decided to move to Nairobi together with the children and to try her luck there. In 1967 her husband returned to her, sick and destitute and begged to live with her. She forgave him and took him back.

Mama Kiganya developed into a successful entrepreneur and managed to get her children educated. Her eldest son became a mechanic, while her eldest daughter, Lucy, had to leave school because of pregnancy. Lucy now lives with her two small children in one of her mother's rooms and they jointly operate a beerbrewing business. Mama Kiganya orga-

A small female elite, especially in some Asian countries, who have had the advantages of higher education, are able to pursue professional careers, as this teacher of physics has done. The science equipment she is using was provided by UNICEF. (ICEF 7332/Wolff)

nizes the brewing of the beer and looks after Lucy's small children while Lucy herself a young and pretty woman, conducts the retailing side of the business by running a bar in her room.

Out of the proceeds of her ventures Mama Kiganya maintains herself and her husband as well as five children and two grandchildren. She is a hardworking, well-organized and cheerful woman. Her husband contributes nothing to the household in either goods or services and has no say in the way it is run. On occasions when he complains that he is hungry while his wife is in the middle of running her business, she gets impatient with him and tells him to wait for his food until she has time to prepare it. She often points out to him that he has no right to complain since he himself never does any work. Her husband accepts her rebuke meekly and quietly waits until his wife prepares his food.

Such behaviour on the part of Mama Kiganya represents a considerable departure from the typical Kikuyu marriage where the husband has the right to demand food at any time of the day or night and expects to see it produced instantly.

Continuity and change in woman's role

Although the three case studies outlined here relate to women from differing cultures and socio-economic backgrounds, they indicate both the continuity as well as the changing pattern in the role of women. All three women continue to accept their traditional domestic roles. While Mama Kiganya seems to do so only grudgingly, she still accepts responsibility for looking after her husband and children. In their extra-domestic roles these three women have sharply departed from the traditional pattern. Mrs. Khan is a salary-earning social worker, Kempamma works as a paid agricultural labourer and Mama Kiganya[1] runs a beerbrewing business for her family of which she is the matriarch.

The accounts of these three women, though they represent only isolated case studies, do illustrate the energy and ingenuity with which many women manage to adapt to their changing socio-economic environment. They also show that the different roles assumed by men and women in the home still remain much the same, while the traditional balance in their economic roles has been significantly upset.

What is now needed is a radical restructuring not only of the overall pattern of the roles of men and women, but also of relevant values, attitudes and prestige ratings. These changes, though essential, are unlikely to take place overnight, but now that they have begun, they are likely to gain momentum and, hopefully, will lead to a more equitable relationship between men and women. ■

(1) I am indebted to Ms. N. Nelson for allowing me to use her case study of Mama Kiganya, which is part of her yet unfinished Ph.D. thesis.

Family ties are very strong in the Filipino family, especially among the majority lower class people. In times of stress or strain family and kinsmen can be counted on to help. (ICEF 7321/Vajrathon)

The Filipino Family

Mary Racelis Hollnsteiner

"I first came to Manila when my uncle, who was a construction foreman here, wrote my mother offering me a job as a water carrier for the building crew. The pay wouldn't be much, but it would give me a chance to break into the work world with my first job. And I could stay with my uncle for free. My mother wasn't too sure she should let me go, what with all the dangers of city living she'd heard of—and me only 14 years old! But with my father dead and six other children to look after, it wasn't hard to convince her."

Salvador "Badong" Amihan, carpenter, 18 years old

The family always comes through. This is a theme echoed every day in the life of some 70,000 Filipino families. Young Badong and all his brothers and sisters learned it at their mother's knee. Their father died somewhat comforted by the knowledge that he and his wife's relatives would somehow help his widow and children. And the links of responsibility persist; most of Badong's wages go back to the village to help put his younger brother and sisters through elementary, and possibly high school as well.

Contrary to popular stereotypes, modernization in a developing country like the Philippines has not left a disintegrating, alienated family system in its wake. Rather—perhaps because of—the stresses and strains it brings,

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A sociologist who has written extensively on urbanization and the problems of low income city dwellers, Mary Hollnsteiner is Director of the Institute of Philippine Culture at the Ateneo de Manila University.

uffer and Catalyst
Modernization

it has made Filipinos cling even more steadfastly to those closest to them. To get ahead in life, or for the poorest Filipinos to maintain survival level, family and kinsmen are expected to help.

A young mother living in a Manila slum sheds added light on family ties:

"What do I do when my husband is jobless and my children sick? I go to my brother or aunt and ask for help. Actually my request is for a small loan to tide us over but they know as well as I do that the money will probably not be returned. Yet we both speak of it as a loan. That way I am spared the embarrassment of receiving it, and they feel at ease giving it."

Lucila Aghayani,
mother of five, 34 years old

Perhaps if Andoy, Lucila's husband, later finds a steady job that earns him regular wages, the "loan" may be repaid. But at the very least if the lenders were to seek the assistance of Andoy or Lucila at some future date, they can be reasonably sure it will readily be given them with the same manner and spirit which permits them to retain their dignity. This well-established rule of reciprocity keeps the system going, and reinforces the sense of responsibility and family obligation.

Many will argue that this kind of family and kin closeness is merely a carryover from the rural situation—a pattern that will decline as modernization and urbanization take hold. But evidence to date suggests quite the opposite, especially among the majority lower-class populace. Not that the better-off Filipino is casting off this set of responsibilities; he is not. He too retains them but in his expanded societal role he may temper them with more impersonal duties to non-kinsmen as well.

Like the well-known saying to the parents of the bride, "You haven't lost a daughter; you've gained a son," the Filipino family moving from village to town to city does not lose its linkage to relatives; rather it gains new non-kin allies drawn from the wider universe of urbanites. Clearly this does not represent breakdown by any stretch of the imagination—merely a realignment of forces in the face of changing circumstances.

Aling Carmela, once reflecting on relatives versus non-relatives, came to the conclusion that, "Actually in an everyday sense my friends are closer to me than my relatives. Juana and Etang, my neighbours, accompany me to town. We visit one another frequently and play *paginggi* (a card game) together. But when my husband, Rody, passed away last year, it was my relatives that took charge of all the funeral arrangements. Even the ones I see only rarely helped out. That is the way it is with us Filipinos."

Today, however, formidable pressures are testing the family's capacity to respond to the challenges of the seventies. The irony of it all is that much of the misery experienced by family members stems not so much from their adherence to a subsistence lifestyle that is poor but manageable, but rather to the process of development itself which often increases their poverty and makes them less and less able to manage their own lives and predict their future.

"My one-hectare farm used to produce 32 *cavans* of *palay* (about 68 bushels of rice) during the single harvest each year. After turning the landlord's share over to him, I would have just enough rice to see me and my family through the next 10 months. In the last two lean months I would get an advance in rice from my landlord, payable at the next harvest. Then came land reform and the government people told me the land I tilled would now be mine. But Don Pedro, my landlord, and I could not agree on what the price of the land should be, so I took the matter to court. That was three years ago. I have given up pursuing the case as it causes me a lot of trouble. I have to dress up and go to town for hearings that are as likely to be postponed as held—and that means I have wasted a

whole day away from my farm for nothing. Now my landlord is angry at me and refuses to advance me money for fertilizer and pesticides, or help me at all like he used to. Yet I need money and good advice for growing the new varieties of rice that the government people told me to plant—high yielding varieties they call them. At least when I used to plant our native strains, I knew exactly what to do if something went wrong or the weather got bad. Now I look for the farm management technician instead, to find out what to do. But he is hard to locate, either because he has so many other farmers to look after or because he is busy collecting loan installments due the government (for which he gets a commission over and above his salary). Life was easier before the government began asking me to do many new things on my farm. Even though we did not have much, we knew we would at least have that and survive. Now we are supposed to have more but I am not sure whether I can keep up the payments to the government they say I will have to make. If I do not, I may have to forfeit the land to the village co-operative. And then where will I be?"

Carding Alfonso, farmer, 48 years old

Carding's brother, Berto, knows one answer to that all too well. Some years ago his landlord evicted him from the plot he was tilling because he supported an archrival's candidate in a political campaign. Since then he, his wife and older children have tried to make ends meet by planting, weeding and harvesting the larger farms nearby as landless workers. The two older daughters weave mats that bring in a few extra centavos, but they have had to drop out of school after the fourth grade as their services are needed for income raising.

Carding talks about moving to Manila soon if things do not change for the better. He will go first and live with his cousin until he finds a job. Then he will look for his own house—a cheap one in the adjacent slum neighbourhood—or maybe he will simply build a temporary one out of discarded signboards and packing crates, and then send for the family. Although reports on city life are often discouraging because of the ramshackle housing, dilapidated conditions, and the scarcity of jobs, Berto feels he has no real choice but to move. Anyway he says optimistically, "Maybe my luck will change in a new setting."

His friend, Manoling, in the next municipality may accompany him in the migration venture. Manoling had a flourishing four-hectare rice farm, which together with the vegetables his wife raised plus fish and crabs caught in the paddy left his family reasonably well-off by local standards. Then one day:

"Mr. Gregorio, one of the important men in our town, came to ask me if I would lease my land to the new sugar plantation that was being set up. He also guaranteed me a job as a regular worker on the plantation. At first I said no because, like I told you, I was doing fairly well on my farm. But the price he offered was the most money I would ever hold in my hands in my life. Moreover, since the plan could work only if all of us leased our plots, neighbours eager to enter the same arrangement put a lot of pressure on me to go along with the scheme. I also thought, 'At last I can buy Maria that sewing machine she always wanted, my teen-aged son a radio, and my daughters better clothes for school.' Well, I got those items for them all right. But now I am finding it harder than before to make both ends meet. For one thing the fish and crabs we used to catch are scarce because paddy fields have been planted to sugar. Further, this food source is also being poisoned by the insecticide that runs off the fields into the paddy water. The agricultural technician has warned us not to eat those items, but we have few other sources of food. To buy them in the market with our meagre wages in these times of inflation is beyond our means. So what else can we do but take the chance? Moreover, we have no more space to plant vegetables so that our diet is now very monotonous—mostly rice and salt if we don't have paddy fish or crabs. The first sum of lease money I received is long gone—and I haven't even paid off the sewing machine or the transistor radio."

Not everyone, of course, suffers from such change. Many do become more prosperous. But they are usually the better-off families in the community who possess irrigated land or are slightly better educated so that they can utilize the scientific technology packages offered them. Yet for more families than most governments of developing societies will admit, the effect of development is increasing poverty—not only relative to others in the social hierarchy, but absolute in terms of lower levels of living.

Where a man once had control over one kind of comparatively simple technology, development may engulf him in a maze of programmes planned in Manila or some regional centre. They are often beyond his comprehension because they involve many simultaneous changes in such a short time. He may drop into a worse situation or shift into a domestic production system that relies heavily on the modern sector's coming through with services and infrastructure.

Now growing sugar, or coffee, or coconuts, he may become with many others like him the last link in an international market economy whose price fluctuations leave him at the mercy of a system he does not comprehend.

Changes are also coming about at the community level as average citizens learn that through effective local organization they can have a larger say in village or neighbourhood developments. Leadership is becoming subject to class awareness, with the ordinary peasant or agricultural labourer slowly beginning to take on leadership positions which were once the exclusive domain of the better-off rural elite.

Women are gradually coming into the community decision-making picture, although this promises to be a very slow process. But given the management expertise of the average woman through her own domestic experience, there is little doubt that she too will eventually be brought into the larger arena of distribution and consumption of goods and services for a whole village or area.

All this will be accomplished through a combination of tried and true kin support and reliance coupled with an opening up to more effective dealings with non-kin sharing common interests. Community-level pressures for banding together in the interests of the beleaguered groups will certainly force a reorientation in child-rearing practices, family activities, and decision-making patterns. Individual members will realize that ultimately family interests are better served by going beyond strictly family interests to promote community-level solidarity for a more equitable distribution of resources. The Badongs, Lucilas and Cardings of the Philippines will see to that. ■

Despite discouraging reports about dilapidated conditions and ramshackle housing in the slums, rural migrants are pouring into the cities hoping to find a better life. (ICEF 4566/Ling)

THE BRAZILIAN FAMILY: Pulled by Old Values... Pushed into New Ones

Fay Haussman

It is difficult to generalize about "the family" in a country as vast and as diverse as Brazil. In Rio de Janeiro, which has remained Brazíl's intellectual and cultural capital even though the political capital has moved to Brasília, one may read about women over 40, with grown children, who go back to school and prepare themselves to enter a university side by side with adolescents.

In São Paulo, Brazil's economic heart and Latin America's fastest growing industrial centre, there may be public concern about the growing number of *desquites* (the "legal separations" which take the place of non-existent divorces in Brazil). In 1973, there were 18,000 *desquites* in São Paulo for about 100,000 marriages, and the rate of *desquites* was rising at 10 per cent a year. At regular intervals there may be interviews with "successful" women—usually about half a dozen in either São Paulo or Rio—who tell how they manage to run their careers while doing full justice to their tasks as wives and mothers.

Retaining traditions despite odds

None of this is typical of anything but a relatively small segment of Brazil's urban families who are able to adopt the living patterns, good or bad, in developed countries. If one were to attempt any generalization at all about "the Brazilian family" it would probably be that, wherever possible and in spite of severe dislocations, its members have retained traditional concepts and ideals, both good and bad.

Gilberto Velho, a renowned young anthropologist, has recently published a study on middle-class persons who have moved to Copacabana.[1] Aside from the expensive luxury housing on the Avenida Atlantica with its resplendent beach, Copacabana has over the years lost its reputation as one of Rio's "status" residential districts. The people interviewed by Gilberto Velho were white-collar middle class. Many of them had moved from other, less attractive parts of the city, or else from cities in the interior. All of them were concerned with "family" links. Some young couples were living in minuscule apartments

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In Brazil, the majority of mothers of young children do not work outside the home. Whatever the family's economic need, most mothers will not go out to work until the oldest child has reached the early teens. (ICEF 4144/Speiser)

with a father, or a mother. The women's social life invariably consisted of afternoon outings with a sister, or a cousin, or else of visits to their parents in other parts of town, and, if the rest of the family still lived in another city, included periodic, if often inconvenient, trips to see them.

Urban migration grows and grows

Brazilian families at large have been subject to an inordinate amount of stress due to social and economic changes. For example, between 1960 and 1975 the proportion of Brazilians living in urban areas rose from 46.2 to 63.5 per cent. In relative terms, this may mean that Brazil's urbanization rate was still lower than that of Venezuela, Argentina and Peru, but in absolute numbers it means that from 1960 to 1975 the increase of people in Brazilian cities *exceeded the total population* of any of the three countries.[2] An urban population of 33 million people, out of a national total of close to 71 million, had ballooned to 69 million fifteen years later when Brazil's population totalled 108 million.

These massive migrations to the cities are obviously triggered by Brazil's rural poverty whose causes are complex and may differ from state to state. In some states there is a practically constant flux of people from agricultural areas to the cities, perhaps those of a neighbouring state. Particularly in the Northeast, where the inequitable distribution of arable land has kept large landholdings in the hands of a few, landless families as a

Many Brazilians recognize the need for a good education for themselves and their children as a way of improving their employment opportunities and as a stepping stone up the social ladder. (ICEF 7322/ Muckenhirn)

rule are unable to subsist on the low wages paid by the owners, whose methods of agriculture have remained archaic and unproductive. Other families may leave small pieces of land to flee from cyclical droughts or floods. All of them want to escape from "rural underdevelopment" with its lack of schools for children and of health care for all, and stream to the cities in search of a better life.

Brazilian cities are full of youngsters floating through the streets. Many of them are the abandoned children of broken families who get picked up by the police for infractions ranging from the theft of a few apples to the sale of drugs. The overwhelming majority of these children does odd jobs. They watch cars, help carry packages, sell fruit, pencils, iced drinks. The work they do is marginal, without any hope for the future. When asked what they are going to do later on in life most of the children say with a certain timidity that they don't know, or else say nothing. As a rule these children must work to help with the family budget.

Problems for relocated slum families

Brazil's dynamic development between 1968 and 1975 is known as the "economic miracle". New urban industries needed growing numbers of trained workers, but the newcomers from the pockets of poverty in Brazil's interior were usually untrained. They settled, often precariously, at the outskirts of cities woefully unable to provide housing or minimum services, and tried to get a toehold on their new life.

What is remarkable is how many of them succeeded. Rio de Janeiro's *favelas,* the shantytowns which clung to the hills of the city like moss to a tree, are known all over the world. In 1970, Rio had 750,000 *favelados* living in 230 *favelas.* The massive move to relocate the *favelados* in the western outskirts of the city started in 1965.[3] Ten years later hundreds of thousands had been relocated in new, if usually shoddy, public housing complexes. Only now that they are no longer *favelados* many of them must travel long distances at great inconvenience and cost to get to the jobs they had in the city as construction workers, janitors, handymen, odd-job-men, hawkers, maids, cooks, laundresses—close to their former *favelas.*

There are plans to create industries at the western outskirts of Rio so that the area will have an economy of its own, but until then

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UNICEF AT 30

On UNICEF's 30th anniversary, three writers with close ties to UNICEF offer their personal reflections on the world's children

Surrogate of fate

Lord Ritchie-Calder

A maxim, attributed to the Chinese, says: "A person who saves a life is responsible for the life so saved."

If that were taken literally, it would be tough on the doctor, the nurse, the fireman and the lifeboatman who would be expected to bring up the child that is rescued. What it does mean is that the human lifesaver has become the surrogate of Fate.

For UNICEF, however, the maxim is meaningful. In giving children a new lease of life, it cannot ignore the terms of that lease. It has to accept the moral obligation to see that a life that has been saved has a chance of fulfilment. Taking into account the deprivations of the less-developed world, where half the population is under fifteen years of age, that is indeed an intimidating task. It means getting involved not only with the child's well-being at birth through infancy, but with his basic requirements through his long struggle to adulthood: health services, clean water, housing, better food, primary school education and training for jobs, to name just a few.

My involvement in the children's cause goes back farther than December 11, 1946 when the United Nations International Children's Emergency Fund was voted into being. I was in Germany as special advisor at Allied Supreme Headquarters immediately after World War II ended. In Europe there were eight million displaced persons. There were the victims of the concentration camps; there were the forced labour contingents; there were the fugitives from bombed cities and the havoc of war; there were the broken armies—and, riding herd on the swarming millions were those two Horsemen of the Apocalypse, Famine and Disease.

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Lord Ritchie-Calder, noted journalist, lecturer and former Professor of International Relations at the University of Edinburgh, has been associated with the activities of the United Nations since its inception. He has served in a personal role as advisor to several UN agencies and has travelled on information missions throughout the world.

Apeksha, the lucky one

Kenneth J. Somanader

This is the story of Apeksha. Ten years ago, she was a mewling little infant in her mother's arms, oblivious of a future which, in any case, seemed to hold no hopes for her. Today, Apeksha is a bouncing bundle of mischief, with a zest for life which is typical of an increasing number of children of her generation.

Her parents are rural folk, the father a simple peasant farmer, and the mother, barely literate. On weekdays, Apeksha goes to school immaculately dressed in a white uniform and red tie, barefooted, of course, while, during the weekends, she helps her mother in the kitchen, in cooking rice and curry over an improvised hearth, or in bathing her baby brother.

Between Apeksha and her mother, Soma, there is, however, a "generation gap", not of understanding or affection, but of childhood opportunity. Soma was born in the late 1930s and hers had been an uncertain life. She was one of three children who survived out of five born to her parents. The other two had died before they reached the age of ten, both from "undiagnosed" illnesses.

Soma, in her childhood, was one of hundreds of thousands of rural children who eked out a scanty existence and just managed to survive. Her parents had been too poor and too ignorant to afford her a proper education or even to think in terms of adequate nourishment for their children. "Proteins" and "vitamins" were not part of their household vocabulary. Bringing up their three surviving children into adulthood was achievement enough for them. Soma's parents could not keep her at school beyond Grade IV. She was needed at home to help in the household chores

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Helping children: challenge and rewards

John Balcomb

Before I left India a few years ago, Mother Teresa, the Catholic nun whose dedicated work among Calcutta's poor has become so famous, paid a visit to the UNICEF office in New Delhi. She gave a little talk to the staff who assembled on the lawn to greet her. I will never forget one thing she said.

"In a way I feel sorry for you," she told us. "We are all working to help the poor people of this world. Probably your work is more important than mine. But unlike me, most of you spend your time working with papers in an office. You do not have the happiness of seeing and touching the sick and hungry people you are helping, as I do."

UNICEF helps children in many different ways, but few of its 323 international officers scattered around the world have the privilege of seeing or touching very many of the children they help. A UNICEF field officer's day may typically be spent grappling with supply problems, conferring with Government officials over the details of a new programme, checking through a cash list to see that the UNICEF training grants for nurses, day-care teachers and others who *do* work directly with children have been paid on time. In its daily routine, a job with UNICEF is much like countless other administrative jobs—with a difference, of course.

And it's a big difference. One question is always foremost in a UNICEF officer's mind. "What can we do, in addition to what we're doing now, to help the children whose need is greatest—and not just a few of them, but a good percentage of them?" If it were a matter of helping a few children, the answer would be easy: UNICEF's

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John Balcomb, an American, has worked for UNICEF since 1960. His assignments have included working at Headquarters in New York and many years in India. For the past few years he has travelled throughout Eastern Africa in his capacity as Chief, Communications and Information Service in UNICEF's Nairobi office.

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Apeksha, the lucky one

and to join the family's struggle for survival.

Today, Soma has big plans for her daughter. Apeksha must become a doctor. She would be the healer and counsellor for her community, to help it bring up more Apekshas.

In Sinhala, Soma's language, "Apeksha" means hope. Apeksha and her mother are Sri Lankans. But they represent the world of today's children. There are millions of Apekshas in Asia, Africa and Latin America, products of enlightened governments and of an international community which is aware of, and alive to, its responsibilities.

Apeksha's future was being planned even before she was born. Her mother was receiving care and assistance at a Family Health Centre which was set up with UNICEF aid, as part of the Government Hospital, Kalutara, where she was taught the essentials of child health and hygiene. As an infant Apeksha was cared for during the day, while her mother was at work in the rice field, at a creche which was also a UNICEF-assisted project. As she grew up, she was not touched by water-borne diseases which had haunted her mother's generation. Hers is one of a hundred rural communities which receive clean, piped water through a UNICEF-supported scheme.

Apeksha can dream of becoming a doctor because the Ministry of Education, again with UNICEF assistance, has expanded its school facilities with an emphasis on the teaching of science, mathematics and pre-vocational courses.

Apeksha is the lucky one. Unfortunately, for every Apeksha, there are three or four other children in the developing world today who are much less fortunate than she is. Approximately half the population of Sri Lanka, nearly seven million, is under 19. That seven million is a bare one-hundredth of an estimated seven hundred million children under 15 years of age living in countries with a per capita income of less than $500 a year. About two-thirds of that number grow up among families with a per capita income of less than $100 a year. This means, in effect, that nearly half a billion children face the daily prospect of severe malnourishment, with the incumbent risk of arrested physical and mental development.

Starvation and under-nourishment are not the only threats to the normal development of the world's children. Inadequate health facilities and, in many cases, the total absence of health education and hygiene also take their toll. Unsuitable, and often non-existent, housing in the cities and towns of the developing world are a continuing threat to the survival and normal growth of millions of children. If they survive this obstacle-course into late adolescence or early adulthood, they would have yet another hurdle—insufficient opportunity to fit into their societies as useful, contributing citizens. There cannot be anything more dehumanizing than to emerge with a school diploma or special skill, only to be told that one's society has no use for that diploma or skill.

Drop-outs are not born. They are the victims of a whole gamut of circumstances, ranging from poverty and ignorance of the individual family to ill-planned development and sometimes even indifference on the part of the affluent to the plight of the weak and the defenseless in their own societies. The world economic structure itself and often narrow nationalisms are other factors.

In the world of developing countries with per capita incomes of less than $500, or even $100, there is not very much that individual governments can do. They can, and of course they have to, begin somewhere, and the Apekshas of the world are testimony to such beginnings and, more significantly, to the world's achievement through international co-operation.

It is an irony of our time that an international effort, which started as an emergency operation, has to continue its work into the fourth decade. UNICEF was to have been an "Emergency" Fund to deal with the problems of children in the immediate post-World War II years. Quite appropriately, it is no longer an "Emergency" Fund but the urgency of its tasks has in no way diminished. It is not just the magnitude of the problems of children the world over that lends urgency to the Fund's work. The opportunity presented by the current search for a new world order in the economic sphere, demands of the Fund a parallel effort to make that new order meaningful to the world's children.

UNICEF's work would not have been accomplished as long as there is a single child in any village, in any country, denied the opportunity of healthy growth, a sound education and a future as a useful member of society. In the last analysis, its success will be measured by the degree to which it has removed the causes for its creation in the first instance.

The new decade which commences is a decade of opportunity for UNICEF, and of hope — APEKSHA — for the world's children. ■

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Surrogate of fate

The lesson of all history teaches us that hunger and pestilence in war and in the wake of war have killed more people than military weapons. In Eastern Europe, after World War I, 10 million people were afflicted by typhus and 3 million died. At that time, the blockade in Central Europe had caused not only deaths from starvation but rampant tuberculosis and the debility which caused the influenza epidemic to flare into a world-wide disaster. In the pandemic 20 million people died. In India, one and a half million died. In Samoa, a third of the population perished. The United States which had lost 63,000 dead in the war, lost 548,000 through influenza.

In 1945 in Germany sitting, as it were, in the eye of the hurricane, I contemplated a repetition of those grim possibilities. They never happened. The United Nations Relief and Rehabilitation Agency (UNRRA) imaginatively and compassionately established in 1943, under Governor Herbert Lehman, moved in to deal with threatened hunger, with refugees and with pestilence. UNRRA had at its disposal a new arsenal of drugs, chemotherapeutics, antibiotics, BCG prophylaxis against tuberculosis and insecticides against vector-borne diseases, like malaria. Above all they deployed food.

The job of reuniting broken families, or rescuing the orphans, returning people to their homes if they existed and accommodating those who could not or would not go back was extremely well done by UNRRA. Then in 1946, it was decided to wind up UNRRA—an untimely decision many of us thought, but at least tempered by the creation of both UNICEF and the International Refugee Organization, responsible for 1,600,000 refugees still in camps. The Children's Fund recognized UNRRA's unfinished business in dealing with the most vulnerable section of society, its children.

Thirty years later, UNICEF still remains. It is no longer an acronym; it is one word, perhaps the only word, common

to every language in the world. Although the full name was changed to the United Nations Children's Fund, for me the "E" in UNICEF still means "Emergency" because every hour of every day there is a crisis in the lives of the young—not just disasters, natural and man-made, calling for instant intervention, but in the break-up of impoverished families, in the migration of displaced persons from the sub-subsistence of the countryside to the pitiless penury of the squatters in the cities.

My affliction is that I can put names and faces to statistics. In the past 30 years, mainly for the UN and its specialized agencies and considerably for UNICEF, I have travelled the world. I have seen dead babies taken from their mothers' empty breasts. I have seen the walking skeletons of marasmus, the swollen bellies of hunger oedema, the wisps of infants dehydrated by hunger toxicosis, the blinded eyes of xerophthalmia, the rusted hair, crackled skin and soundless crying of kwashiorkor. I have seen children crawling with the claw-feet of yaws. I have seen child-mothers dying already exhausted by having too many children.

These are not statistics one can wipe off a blackboard. They are the indelible pictures in the album of human misery, a reproach to the mismanagement of human affairs and a challenge to the world-wide compassion that we call UNICEF.

On the 20th anniversary of UNICEF, I wrote an article called "UNICEF's Grandchildren" recalling babies who had been delivered and nourished on the first UNICEF missions which I had accompanied and who were now grown-up and married and had children of their own. Now they number hundreds of millions who, as the Executive Director of UNICEF has pointed out, live in absolute or relative poverty in developing countries.

I have seen the remarkable changes which UNICEF and its partnership with the specialized agencies have helped governments produce, especially the benefits that children and others derived from the milk depots and Maternal and Child Health clinics they came to; but those successes are not a cause for complacency; they are reminders of what is possible. Possible, that is, given the imagination, the will and resources. And not just money that is the seed corn for hopeful harvests, but employing some of that human ingenuity which put Man on the Moon and his electronic senses on Mars to solve our grim terrestrial problems. It means the active awareness of governments and the combined operation of all the international agencies. And for ultimate success it means investing the initiative of the people themselves. In all my experience, what we have done *for* people has been less enduring than what we have done *with* people.

That, however, is the horn of UNICEF's dilemma. In the Misery-go-Round of Poverty, the Carousel of Calamity, hungry people are sick, sick people cannot work, hungry and sick people cannot learn. They lack the initiative to improve their lot. If they cannot improve their lot, they cannot grow nor earn enough food and if they are hungry, etc., etc. So to break this vicious cycle, they must have not only survival food but nutritious food; they must have health services; they must have the means of education; they must have better living conditions to remove the mind-numbing conditions of degradation. Then they might take the initiative, but meanwhile UNICEF must do everything possible to improve the present conditions and help lay the foundation for permanent benefits for mothers and children.

How does it look, thirty years on? Unfortunately, despite some progress, the rapid rate of population growth has increased the number of children dying from preventable disease, suffering from severe malnutrition, and missing any sort of schooling.

But there are signs of progress. One is the redeeming concept in international thinking that "investment in human resources" is a necessity. It recognizes that the prosperity of a nation depends as much on the capacities of its people as on its material resources. Poverty and degradation are denaturing those human resources. Tens of millions of children in the developing countries are suffering from nutritional deficiencies which will cripple them physically, mentally and temperamentally. Instead of assets, they can become liabilities.

Fortunately, we see the beginnings of a new approach which should help to bring more services to more people more quickly than in the past. UNICEF has taken the lead in advocating the expansion of simple elementary services for children by the fuller use of volunteers and part-time workers in their own communities.

With UNICEF acting as advocate and catalyst, these practical and low-cost measures should result in bringing a whole range of interrelated services to large numbers of children and mothers who as yet have had little or no services whatsoever.

It is hoped that this approach will hasten the improvement of conditions of the majority of children—and their families—throughout the developing world. ■

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Helping children: challenges and reward

money could simply be spent on food, clothing and medical fees on some sort of an individual "neediest cases" basis. But since it's a matter of reaching the maximum number of children, UNICEF concentrates on helping governments to strengthen their own services for children, the precise assistance package varying from country to country.

One of the things that makes UNICEF's work exciting is the implications of this policy. What do computers have to do with helping children, for example? Quite a bit, if you consider the nutritional early warning system that UNICEF is helping the Government of Ethiopia to set up. In the great Ethiopian drought of 1973, whose effects still persist in parts of the country, lack of information about food conditions in different parts of the country seriously hampered relief efforts. Under the early warning system, reports about rainfall and agricultural conditions are now coming in from 80 different locations and are being fed into a central computer. Fewer children will go hungry in the future because relief supplies can now be dispatched to remote areas *before* famine actually strikes.

Measles—regarded as a mild disease in the temperate zones—is one of the biggest child killers in the tropics; no one knows precisely why. Measles can now be prevented through vaccination, but the measles vaccine is a "live virus" vaccine and quickly loses its potency unless stored at a temperature just slightly above freezing. In collaboration with the World Health Organization, UNICEF is now helping a number of countries carry out massive vaccination campaigns against measles. One of the big problems is maintaining the "cold chain" from the time the vaccine leaves the laboratory in some temperate zone country until—by air, then by road, and finally, perhaps, by foot trail—it reaches the point where it will save a number of children's lives. UNICEF staff spend quite a bit of time worrying about transport, refrigerator maintenance, the design of portable cold containers. It's part of the job of helping children—though the persons engaged in

the job may never touch or see the actual children they are helping.

I recently had tea in Nairobi with a prominent legislator from a rich country that has supported UNICEF generously over the years, as he himself has personally. He asked me what UNICEF was up to in Africa, and I told him about some of the big rural water supply projects we were assisting. "What's wrong," he asked me, "Have you run out of children?" I explained to him that one of the greatest causes of sickness and death among children in Africa was polluted water. He got the point immediately—but it *does* take a little explaining sometimes. In the developed countries, we now take safe water for granted. If our own children were still dying of water-borne diseases, the relationship between water and child welfare would require no explanation at all.

Helping children requires imagination. Thousands of children in the tropics go blind every year because of vitamin-A deficiency. Vitamin-A capsules are the obvious answer—but the problems of distribution are almost insurmountable in countries where less than 20 per cent of the population may live within walking distance of a health centre. Tropical fruits and vegetables provide plenty of vitamin-A, but they are seasonal and spoil quickly. UNICEF is now promoting low-cost solar driers, which can be built at the village level for the equivalent of $3.00. Sliced carrots, fruits and green leafy vegetables can be dried in these polythene covered frames in a few hours and can be stored indefinitely with most of their vitamin-A content intact. Design a solar drier and prevent blindness among children. That's one way of helping.

In times of disaster—drought, famine, flood, civil war—UNICEF's method of aiding children is much more obvious. Emergency feeding programmes are undertaken, sweaters and blankets are distributed, medical supplies are rushed to the affected areas by air. It is often very dramatic, and if one is on hand, one can, indeed, participate directly in the life-saving task and see children who were at the point of death restored to health. But even in emergencies, the big tasks are planning, procurement of supplies, logistics, transport. The key man of an emergency operation may be someone working at an airport or in a motor maintenance shop—or even the clerk whose job it is to see that all the voluminous documents are in order.

In 1963, before I became a "field man", while I was still stationed at Headquarters where the results of our labours often seemed all too remote, I took my first extended field trip. One of the countries I visited was Indonesia. I toured Central Java and saw quite a few concrete demonstrations of how children benefitted from UNICEF aid: children being treated in UNICEF-equipped health centres, children eating nutritious vegetables grown from UNICEF seeds, gnarled "granny midwives" learning how to deliver babies safely with the use of a UNICEF midwife kit.

I was travelling with a local doctor and we stopped for the night in a rest house in the mountains. Before bedtime he challenged me to a game of chess, and as we played, we talked about the difficulties of providing safe water for household use. I mentioned that in Thailand, which I had just visited, water was collected from the tile roofs and stored in cisterns. There was tile roofs in Central Java too. Why couldn't clean water be collected that way? The doctor shook his head. He didn't think it was feasible.

The next morning he greeted me at breakfast. "You know," he said, "I couldn't sleep for a long time last night. I was thinking about what you said about collecting water from roofs. Why *can't* we do it? I'm going to try to start a programme along those lines."

I remember this conversation as one of my most rewarding experiences. Just in a casual, friendly way, I had been able to make a suggestion that a man I greatly respected thought useful.

One of the ways UNICEF helps children is through the exchange of ideas. I am not a medical expert or a transport man or anything in the "nuts and bolts" and planning lines that are such an important part of UNICEF's work. I am basically a reporter and a writer and my field, if I must be ascribed a field, is information and communications. Perhaps, for this reason, I appreciate better than most people the tremendous role UNICEF has played over the years in encouraging the exchange of ideas and experiences among different countries about practical measures to meet some of the outstanding needs of children.

Thinking again of Mother Teresa's remarks and looking back over the sixteen years I have worked for UNICEF, I don't really think she has to feel sorry for us at all. ■

An appeal to conscience

Henry R. Labouisse

It seems to me we are at a point in history in many ways comparable to the time when UNICEF began. After the devastation of World War II, the future of a whole generation of Europe's children hung in the balance. There were few historical precedents for meeting their needs. But a combination of an awakened collective conscience and the dedication of thousands of inspired people produced imaginative and effective solutions. An effort of unprecedented scope was mounted and a generation of European children was saved.

Today, the future of some hundreds of millions of children in developing countries hangs in the balance. Compared to what happened in post-war Europe, the global problems we have to face are of greater dimension but they are not insoluble. A choice has to be made, consciously or not. The world community can allow some of these children to starve and many to grow up stunted physically and underdeveloped mentally. Or, our societies can—all together—make a determined effort to marshal our intellectual and material resources to meet the needs of deprived children everywhere. The intention to do so has been expressed by an impressive number of Governments in recent conferences. Their voices seemed to speak for the conscience of mankind. It is time, now, to translate words into action.

We in UNICEF do not pretend to have a miraculous cure for the ills of the world. But we do believe that, by expanding our mission of assistance and by advocating a rapid enlargement of basic services for children, we are showing the way to solving a problem which is one of the keys to the success of further development, a key to a more promising future for the coming generations.

Henry R. Labouisse
Executive Director
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it will, among many other shortcomings, suffer from a lack of odd jobs for people without professional qualifications. One of the area's chief problems seems to be that while its people were living in their *favelas* they had easy access to all the advantages of a big city, including good schools and permanent contact with people of other social and cultural levels.

Inevitably the overall situation means that mothers with small children are literally nailed down at home. Whatever the family's economic need, a mother can go out and work only after the oldest child has reached the early teens. School is usually part-time, for those who go to school, so the youngster can take care of the family the rest of the day—and does. Mothers of young children don't work outside of the home. This, in a country where women now slowly try to take advantage of the rights which are already legally theirs, has remained a practically inviolate taboo at all social levels.

Figures collected by the Labor Secretariate of São Paulo, for example, show that about half the women employed in the state are between 14 and 25, and the other half between 35 and 60. The ten years between 25 and 35 are those devoted exclusively to the family. 70 per cent of the women working in São Paulo industries are single. (In 1940, the national ratio of working men to working women was about 8 to 1; in 1970 it was 4 to 1. More than half of all wage earning women are employed as domestics.)[4]

Changing values and habits

A number of studies have been made recently of the São Paulo workers and their families. For the most part, they have an entirely different set of values than the workers who preceded them sixty or so years ago. At that time, workers in São Paulo were immigrants; most of them came from Italy and, as a rule, were anarchists. That means that they negated society as a whole, its political system, its social system, but on the other hand tried to create a life style which was different from that of the ruling class. Most of today's workers have not grown up in working class homes. They are children of small farmers or simple farmworkers with large families and have migrated to São Paulo's industrial centres from the Northeast or from the interior of the state. They have had to redefine their values and change their habits.

São Paulo's workers are the best paid in Brazil; they have access to training and know that each step in additional qualifications means better pay and a step up the social ladder. As one of the studies puts it: "The 'young' Brazilian worker has two great obsessions: education, for professional improvement and as a tool for social mobility, and his own home.

He wants technical education for himself and formal education for his children as a stepping stone up the social ladder."[5] Education for them and for their children means the possibility of a better future than they them-

Brazilian cities are full of youngsters floating through the streets. The majority have odd jobs such as shining shoes, watching cars, carrying packages or selling fruit, iced drinks or pencils. As a rule these children must work to help with the family budget. (ICEF 4118/Speiser)

Rio de Janeiro harbor forms a backdrop for two *favela* (shantytown) boys. In 1970, Rio had 750,000 *favelados* living in 230 *favelas*. A massive move to relocate the *favelados* in the Western outskirts of the city started in 1965. Ten years later hundreds of thousands had been relocated in new public housing complexes. (ICEF 5857/Dubert)

selves had in the rural communities from which they come. The workers thus have the urge to adapt to the society around them, and to adopt its values. The drive to own one's own home, however, is still in part a remnant of the values they grew up with: a house, which many of them build by themselves with the help of neighbours, will, on the one hand, cut down on the rather considerable expense of rent; it also means that they own "property," a piece of land, which was inaccessible to most of them in their former communities.

Children need more realistic education

What kind of socialization is available for children of rural migrants to Brazilian cities? Needless to say, even unflagging motherly devotion during their early years will usually provide little more than the most rudimentary cultural background for these children.

Moreover, until quite recently Brazilian school curricula were oriented strictly along urban middle class standards. Only in the last few years have young children's persistently massive failure rates in first grade been recognized as being, in fact, a failure of the schools.

Public pre-school education is still available only to a tiny minority of Brazilian children. In São Paulo, for example, a study has shown that 60 per cent of the children under 6 in the state of São Paulo were "culturally marginalized" children. Thus, the study shows, almost half of the children who fail in first grade do so because they come from economically deprived families and are in no way prepared for the demands of school, and because the school system they are supposed to integrate is not prepared to receive them since its instruction presupposes a minimum of indispensable knowledge and ability.[6]

But more and more educators now say that teachers must work within the child's "real situation" and that the "problem of education cannot any longer be treated as a situation circumscribed by the four walls of a classroom."[7] School must try to approach children's initial learning dysfunction as an "overall problem" and try to reach the children's families and their communities.

A utopian statement, in traditional Brazilian contexts. Its realization may remain utopian for years to come, but statements like that are increasingly being made, publicized, and listened to. ■

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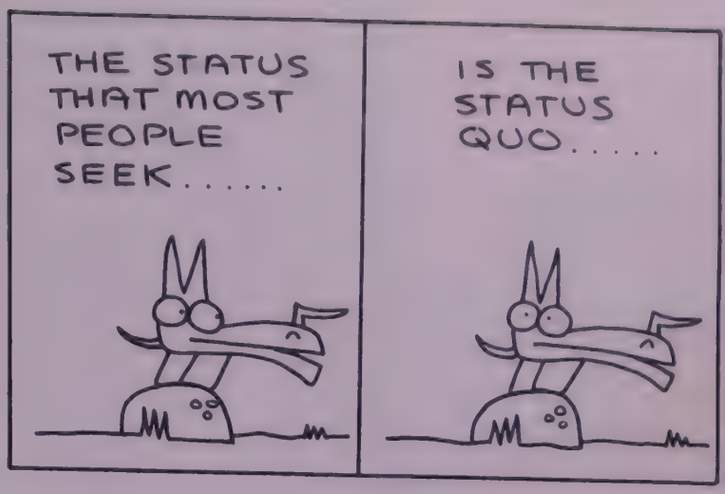
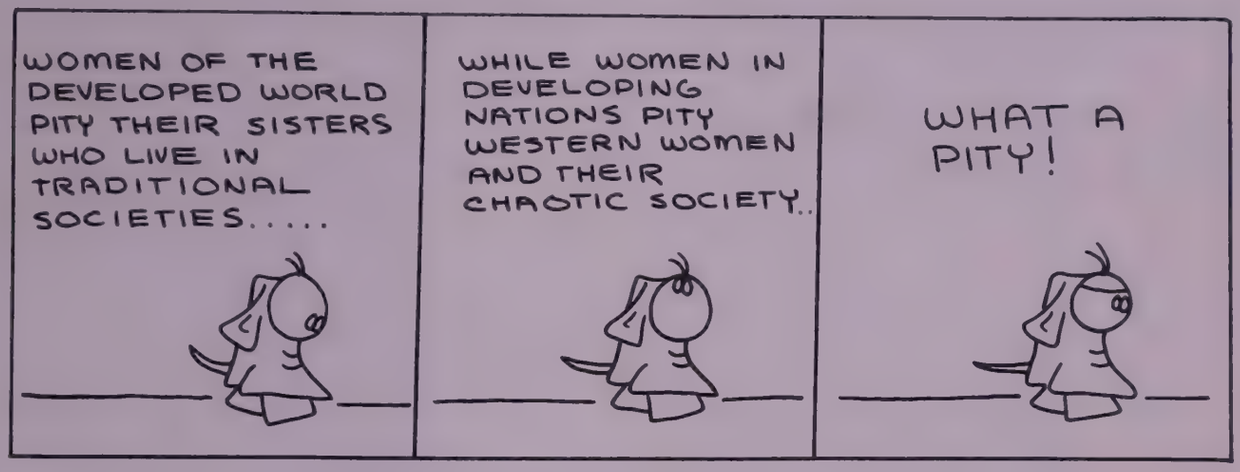
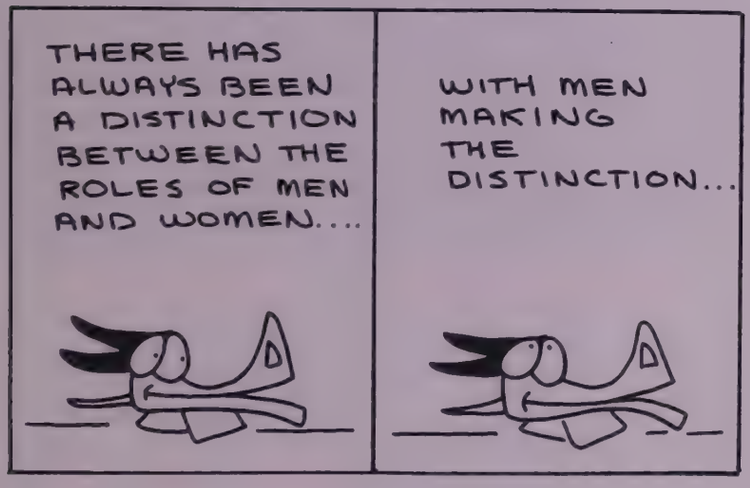
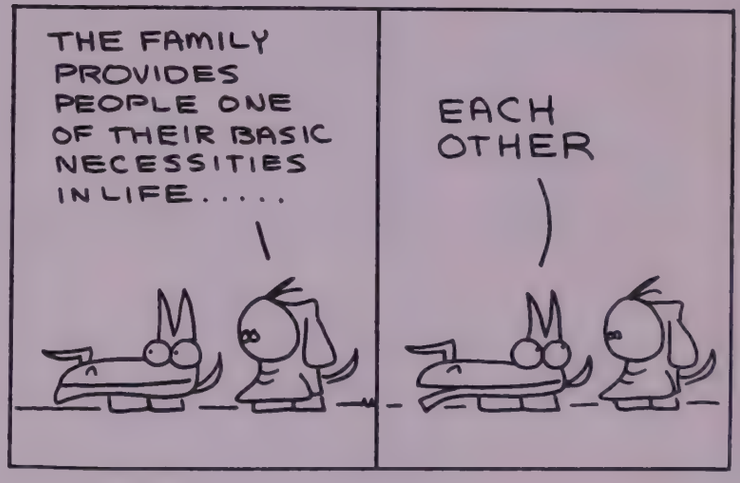
the family

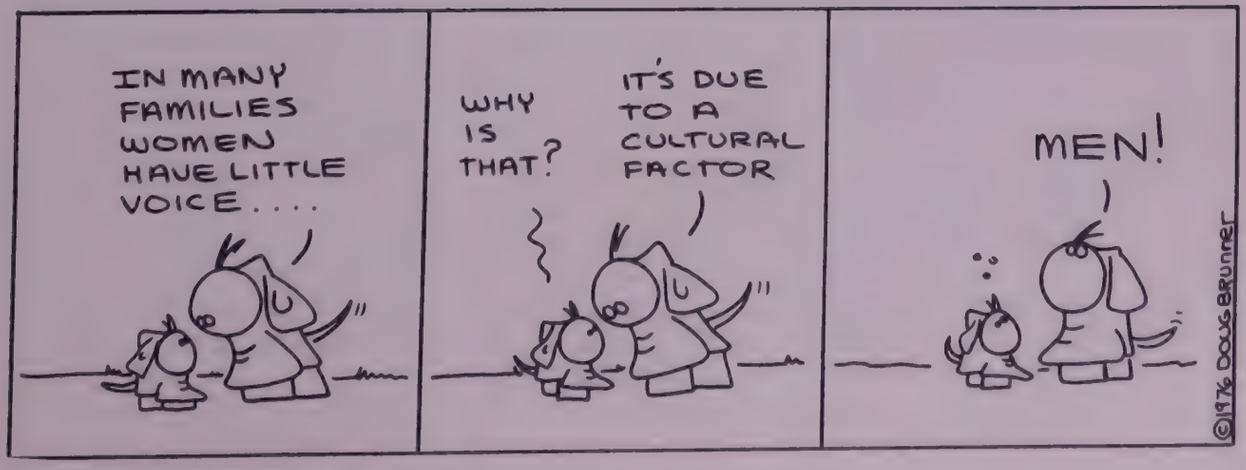
BY DOUG BRUNNER




WOMEN OF THE DEVELOPED WORLD PITY THEIR SISTERS WHO LIVE IN TRADITIONAL SOCIETIES.....
WHILE WOMEN IN DEVELOPING NATIONS PITY WESTERN WOMEN AND THEIR CHAOTIC SOCIETY..
WHAT A PITY!







THE INDIAN FAMILY– Continuity and Change

Manorama Moss

Meera lives in a joint family and has done so since her marriage at the age of 15. In her husband's home were his parents, his four brothers, their wives and children, two unmarried sisters, his father's widowed sister and a few assorted indigent cousins, who in return for food and shelter, helped with the domestic chores.

Now in her fifties, Meera is somewhat bitter about the joint family system which, in her opinion, suppresses the individual and forces one—especially a woman—to lead a subterranean life of hostility and intrigue.

All the power in the family was concentrated in the hands of her father-in-law, and after his death, passed to his eldest son who then became responsible for making all the important decisions. Since Meera's husband was the youngest he never had the opportunity to assume any major responsibilities for the family. Meera deeply resents this custom for she feels that it prevented him from maturing and reaching his full potential.

In the women's case, they were ruled by the mother-in-law who had the last word about everything from child care to what the daughters-in-law might wear.

Nuclear versus extended family

Saroja, Meera's daughter, lives in a nuclear family where both she and her husband work. Saroja looks back nostalgically to the joint family in which her three children—and the household chores—would have been cared for by relatives instead of servants. Meera believes that if Saroja had been part of a joint family system, where more orthodox customs are perpetuated, she probably would never have had the opportunity to work.

Today in India, the modern family is a curious mixture of old concepts and new individualism. New patterns of employment which take

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A marriage ceremony takes place in Madras. Before arranging a marriage, family members consult each other. Domestic rites and celebrations can be staged more elegantly by a large family and the resulting prestige enhances all within the family. (Photo by Bernard Wolff)

people far away from their ancestral homes, have affected the old joint family system. It cannot be assumed however that there is any basic discontinuity between the nuclear and the joint or extended family. Kinship begins with the family and is extended through the family. Kinship ties are still taken to be the most durable, reliable and moral. In the case of the family that is physically separated, the brothers may continue to act as a functioning family. They will meet in the village home, contribute to the income of the family still in the village home, rally to each other's help for emergencies and ceremonial occasions.

Saroja relates the story of two brothers who became bitter enemies. Yet so strong were the kinship ties that when one grew so mentally deranged that no one would care for him, the estranged brother took him into his own house and nursed him until he was well again, whereupon the enmity was promptly resumed!

Before arranging a marriage or taking any other important step, the family members consult each other and due deference is given to family opinion. Domestic rites and celebrations can be staged more elegantly by a large family and the resulting prestige enhances all within the family. Each person is still, to a greater or lesser extent, seen by others in the light of his family's reputation.

Family welfare often a burden

It must be remembered that there is no public welfare system in India, and so it is still expected that the more prosperous members of a family should assist the poorer ones. Every relative of Saroja's husband has the right to come and stay. When her brother-in-law was unemployed, he and his entire family were supported for six months by her husband. This she considers unfair, since her

The male is supreme in the Indian family, with all the power concentrated in the eldest male member who is responsible for making all the important decisions. A husband is expected to be his wife's superior, and to receive actual symbolic deference from her. (ICEF 7323/Khopkar)

husband does not receive any supplementary income from his own family, which is no longer joint.

Today's nuclear families are not geared for the kind of financial claims that still continue. Housing is too inadequate, food too expensive, to take the incursion of several extra persons. But this is a carryover from the joint family tradition which calls for immediate aid to a member in time of trouble. Under Hindu law, each male was entitled to an equal share of the family property from birth, hence all brothers were co-partners, sharing equally. Women were entitled to maintenance, but under the ancient law, they had no vested rights.

Today, the Hindu code Bill has changed that, and women are entitled to inherit equally with the men. A bride, however, still leaves her home to go to her husband's home and takes with her a dowry; she does not usually share in the landed property. A husband is expected to be his wife's superior, and to receive actual symbolic deference from her.

Women's expectations limited

Kaveri, a South Indian Brahmin working woman, describes her wedding rituals. The bride's father must wash the groom's feet and the bride has to prostrate herself before her husband. A symbolic yoke is placed on her shoulders. In Kaveri's view, there is no great expectation that a couple should share thoughts and tastes. This, she feels stems from the joint family system whereby a young couple did not spend much time with one another, and too much overt intimacy between them was frowned upon. Perhaps she adds, this was to prevent the young wife from binding her husband too closely to herself, thus endangering the joint family.

The spheres of activities of men and women tend to be markedly separate in the traditional setting. Age and sex are the guiding principles in family hierarchy. A widowed mother may wield great influence on her son. As Shanti recalls: "When I was growing up, Father was the chief authority on official and financial

The ideal of deference to parents is rarely questioned. In matters of childbirth and child care, the mother-in-law generally has a great deal to say. (ICEF 7324/Wolff)

matters. He was a District Commissioner and practically ruled the district like a king; yet he would always go to his mother, who was nearly illiterate, for the final decision in family matters."

The ideal of deference to parents is rarely questioned, and in practice it endows the elders with an authority that is not lightly ignored by their children.

A woman is deferent as a wife, but not as a mother, and the obedience of children is expected to be lifelong. Among brothers, authority rests with the elder. A younger brother should give him, in formal terms at least, the same respectful compliance a father would command. A woman's authority depends on her husband's position in the household. Meera says, "My husband was the baby of the house—so I got bossed by everyone!"

Disadvantages for women and children

Recalling life in the joint family, Meera points out that the men always ate first, being served by the womenfolk who then ate together in the kitchen. Since her family was fairly affluent, there was usually sufficient for the women, unless there were unexpected guests. But in the poorer families the women have to eat only what is left—and that is usually only the liquid in which meat, fish or vegetables had been cooked.

The devotion of the Indian wife is legendary, and remains one of the proud values of family life. The ideal of "*pativrata*", one who follows her husband's will in all respects, is still upheld at many social levels. Even a modern wife may walk behind her husband, avoid uttering her husband's personal name, and greet him ritually. This concept of feminine self-denial continues even with changing family patterns. Among the poor, women of child bearing age consume less than 2000 calories and 44 gms. of protein daily and the diet, largely vegetables, does not improve during pregnancy and lactation, as women continue to give whatever is available to the husband and children.

A young wife prepares food under the critical eye of her mother-in-law. Because of the great influence of the mother-in-law, many young wives often refer to her as the "enemy" or the "ogre". (ICEF 6839/Heyman)

Today the care of children in poorer nuclear families tends to be left almost exclusively to older siblings, a condition which tends to result in faulty nutrition and health care. Among the poor, a woman usually has eight pregnancies to attain a family of five children. The mean interval between two pregnancies is about 32 months, but for much of this time, the women are nursing. So these women are either pregnant or lactating throughout their reproductive years. As a consequence, they have little time to devote to their children's care, and the surrogate figures that would have been available in a joint family are lacking. In breaking up the joint family, a great many beneficial customs and traditions of child care and family life are being lost, especially among poorer families.

Less change than meets the eye

How do these different strands of familial life, some of which continue, some of which have become submerged, affect the family today? The changes in India are not yet great. Most of the basic attitudes continue. The filial-paternal idea is still strongly respected. People tend to remain in joint families longer when economic factors are favourable. The fewest joint families are to be found among the poorest groups of people.

The woman's position is still equivocal. She is admired and worshipped in theory, but in practice, her virtues of self-sacrifice and submissiveness still make her highly vulnerable.

According to Meera, there are many advantages in a joint family such as providing immediate aid when needed for every member, increased efficiency of pooled labour, the economies of a single kitchen and household, and the care of young children who never face the loneliness of the nuclear family system.

The old idea of the joint family as a large happy family has done a great deal to offset family planning drives which stress the small family norm as the happy one. This is largely contrary to Indian ideas, for the modern Indian is often nostalgic about the joint family ideal.

Sita, a young college girl from a middle class family, describes what she considers typical of the conflict in the so-called nuclear family. "The father is a very kind person, but he was brought up under his father's strict rule, in a home where the mother had no voice. He has seen her miserable, repressed life, and he is conscious of a woman's position. So in every way he respects his wife. But he cannot forget the old concept that the father is the ruler. This contradiction in his nature makes for conflict—for he expects the children to obey him, and his wife to seek his permission for anything beyond the household matters."

In fact, even today, when many Indian women have stepped beyond the bounds of the family and hold equal positions with men, one of the ideals still accepted by them is that they should be "unassuming". The mother-in-law still remains the "enemy", "ogre", "dragon", to young wives. Lakshmi, a college teacher, says of her husband, "His highest ideal is to make his parents happy."

In short, a look at the Indian family today reveals that much of the old customs continue, that the endurance of women seems inexhaustible, and that the demands of the entire family still take precedence over the wishes of the individual. ■

the man's role

John Balcomb

To talk of the man's role in the "changing" family is, in a sense, to beg the question. In much of the developing world, once we leave the capital cities behind, the family has changed relatively little in the past thirty or forty years.

From prehistoric times down to the present day, the family as the basic human social unit has been tested in the crucible of survival under varied environmental stresses and circumstances. Perhaps someday, when society at large can provide cradle-to-grave security to all its members through institutional services, the family will disappear though some will not find that prospect a particularly attractive one. But this is not happening. Also, in spite of recent social changes, the role of the man in the family—and in society as a whole—is still, in most cases, predominant.

Among many higher mammals the role of the father is negligible in the care of the

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The role of the man is still, in most cases, the dominant one. All basic family and clan decisions are made by the men and in any decision involving innovation whether it be the introduction of a new strain of cattle or the immunization of children, the man's approval is absolutely necessary. (ICEF 7325/Oyedele)

young. The lion pride is essentially a sisterhood; the males do little of the hunting and are periodically replaced. Elephant societies are distinctly matriarchal as Ian Douglas-Hamilton discovered through several years of research in Tanzania's Manyara National Park. The human species, however, with its long period of infancy and childhood, and lacking the formidable physical equipment of the lion and the elephant, has only been able to survive through the participation of *both* sexes in the protection and rearing of the young.

Changes for the worse

Where the family is changing most rapidly today is in the growing urban centres and in the rural areas that respond to the cities' gravitational field. Here family life *has* changed for the worse. Indeed, there has been a tendency for the family as such to dissolve.

The pattern is a familiar one. Young men within the city's gravitational field leave for the city to seek their fortune, an illusory quest in nine cases out of ten. Even those who return home no longer wish to follow traditional occupations.

The French sociologist, Emile Durkheim, coined the word "anomie" to describe a state of rootlessness and lack of identity. It is not a pleasant condition. In some of the urban and peri-urban slums of the Caribbean, where the breakdown of family life has been extreme and where 90 per cent of the children may be legally fatherless, the responsibilities of the women are overwhelming, but the fate of the men is not entirely enviable, either. No one really enjoys being useless.

Different roles for men and women

As in other parts of the developing world, the roles of men and women are sharply defined in most African cultures, though not always in terms of the same division of labour. To give a fairly simple example: when the Wahaya of western Tanzania build a house, the men erect the wattle frame and thatch the roof, while the women apply the mud plaster to the walls. In some tribes both men and women work in the fields, the women doing the lighter cultivation. In other tribes, the men never touch a hoe. Hunting and local warfare, important male prerogatives in the old days, have largely disappeared as occupations.

Women probably always did most of the agricultural work, so as agriculture has become increasingly important in the family economy, the share of the physical work done by women has doubtless increased.

The men tend to retain, however, what for want of a better word might be called their "managerial" functions, and though it may seem unfair that the women should be stuck with so much of the drudgery, the men's managerial work is important.

Among the Masai, for example, all basic family and clan decisions are made by the men. These are not individual decisions; they are group decisions, arrived at through extended discussions among fathers, sons and family elders. They include important matters such as where each family's cattle will be grazed.

In any decision involving innovation, whether it be the introduction of a new strain of cattle or the immunization of children against smallpox and measles, the men's approval is absolutely necessary. "Don't underestimate the women," I was told by a young anthropologist, John Galati, who had lived

A family planning worker talks to a group of factory employees. Family planning studies show conclusively that if the men are not motivated, efforts to induce people to have smaller families will be largely futile, for it is the men's notion of desirable family size that tends to predominate. (ICEF 7326/Wolff)

and worked among the Masai for more than a year. "Some of them are great advisors and persuaders. But in general, if a man is convinced, something will happen. If a woman is convinced, it might not."

Motivating the men

Family planning studies conducted in a number of cultures have shown conclusively that if the men are not motivated, efforts to induce people to have smaller families will be largely futile, for it is the men's notion of desirable family size that tends to predominate.

When we move into fields affecting the well-being of older children, such as education, the father's role becomes even more important. An amazing number of village schools are now being built and financed on a self-help basis. If the men of the community are convinced that a school is necessary, it will be built. Otherwise nothing will happen.

What applies at the family and community level applies equally at the national level: men and women alike must be involved in decisions affecting the advancement of the younger generation. Children deserve as much if not more consideration in a country's development plans as its factories, its farms and its natural resources. To get them the attention they deserve, we must reach the decision makers. Whether it is right or not, most of the decision makers in the developing world today happen to be men.

One of the things that surprised me when I first began touring UNICEF-assisted projects in Asia and Africa was how much of our time was taken up in discussions with grown men, though the object of our assistance was mothers and children. I soon saw that this was unavoidable if UNICEF was to be effective. The job is not to convince nurses, midwives and mothers that the health and well-being of young children deserved a high priority: it must be to convince the senior planners, administrators and officials—in short, the men who establish the priorities and make the policy decisions. ■

MOTHERHOOD IN A CHANGING WORLD: The Case of Ghana

Christine Oppong

Most Ghanaian women—the educated and illiterate, the urban and rural, the young and old—work to earn an income in addition to assuming their roles as housewives and mothers. Their reputation for economic independence, self-reliance and hard work is well-known and well deserved.

Most of Ghana's working women are farmers and traders. Quite a few in the southern part of the country head their own households. Only one in five or even fewer can be classified as simply housewives and even these women tend to earn money by taking in sewing, or by baking and cooking items to sell. They also maintain vegetable gardens and run poultry farms. Indeed, the woman who depends entirely upon her husband for her livelihood is looked upon askance.

Nine out of ten women fifteen years of age and over are married—and the fertility of Ghanaian women is among the highest in the world, with an estimated total fertility ratio of seven children born per woman. Studies reveal that the majority of women in every region of the country would like to have six or more children.

In short, the normal life pattern for most Ghanaian women is to combine an active role in the economy—chiefly food production and processing and retailing of goods—with an active role as wife and mother of a large family.

Admittedly, the problems faced by a woman who works away from home, as in an office, school or hospital, are different from those faced by the farmer or trader who can easily take her baby on her back to work or be accompanied by her pre-school children.

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Most women in Ghana combine an active role in the economy—chiefly as farmers and traders—with an active role as wife and mother of a large family.
(ICEF 7328/UNICEF)

Sharing motherhood

Traditionally, in Ghanaian communities the tasks of motherhood have been shared. In southern Ghana, among the Akan and Ga peoples, wives continue to live with their own relatives even after marriage, and mothers

and sisters, grandmothers and nieces all help to rear the children and to carry out daily tasks, including household chores and trading and farming activities.

In other Ghanaian communities in which wives go to live with their husbands after marriage, the wife sometimes takes a junior relative, sister or niece along to help her, or co-wives co-operate; or, as among the Dagomba, young mothers return to their childhood homes after delivery of a baby in order to be helped by their older female relatives during this crucial period of their lives. Mothers have been used to sharing the burdens of child-rearing not only with their husbands, but also with their kin, and as the family has grown, older brothers and sisters have also helped to care for the younger ones.

Sharing of child care responsibilities among kin has been institutionalized to such an extent that in some traditional communities many children have been fostered or sent to be reared by relatives. Sometimes this practice has served to teach the child a particular skill such as drumming; it has also been a means of providing a child to a woman who has none of her own.

Successful and prolific motherhood has been considered *a,* if not *the,* major satisfaction in life. Also, children have been quickly absorbed into the working life of the home and community, becoming productive workers on whom their parents can depend in their old age.

Mixing new and old ways

Now we must ask what is happening to mothers in the nineteen seventies, where traditional and new ways mingle side by side. What happens when children change overnight from family workers in the home and on the farm into school children who now require time and money to achieve their education? How do today's Ghanaian working mothers cope with their multiple responsibilities in the home and on the job—a problem besetting women the world over, which many solve by restricting either their reproductive or economic activities or both?

A glimpse into the lives of three types of women from the upper, middle and lower socio-economic levels of society may provide some answers.

For wives of the elite, such as Government Senior Civil Servants in Accra, it is quite normal for the working wife and mother to delegate many child-rearing tasks to relatives and unrelated domestic servants, many of whom are under fifteen. But in the modern urban situation, this traditional practice creates many problems and makes it more difficult to maintain the customary degree of security, continuity and harmonious balance between mothering and child-minding.

Babies and pre-school children of elite mothers may be subjected to the care of a series of child-minders—sometimes a dozen or more—who are themselves minors in need of more care and protection than they may receive from their employers.

With increasing numbers of children going off to school and not available to help at home, an extra hardships falls on the mothers who must work harder as farmers and who must also take on such chores as carrying water and firewood, grinding and pounding, along with the frequent burden of pregnancy, nursing and baby and toddler care. (ICEF 7329/UNICEF)

The practice of poor mothers sending their young daughters to serve the rich is one way of ensuring that these girls will be fed, clothed and housed and, it is hoped, paid in return for their labours. This exchange between poor rural and well-to-do urban mothers permits both to continue to have six or more children without unbearable strain on their resources.

Today, however, as more and more girls go to school, the situation is changing. Maids are more difficult to procure, and only the indigent or irresponsible will view domestic service as a suitable way of life for their own young growing children.

The middle class mother

Shifting our focus to mothers with relatively low incomes who may work as nurses and primary school teachers, for example, we find that they are under considerable stress and strain trying to rear several children while pursuing demanding professions. A recent survey of nurses confirmed that they frequently suffer from physical exhaustion as they struggle to combine full-time careers with motherhood. A study of primary school teachers shows similar symptoms of stress and strain.

Among these educated women, there is increasing reliance upon family planning measures to prevent maternal responsibilities from becoming excessive. Four children is now the most widely desired number among these women rather than the six or eight their mothers had.

Special problems of the poor

Among the poor and illiterate group of women who are mainly engaged in farming and trading, especially in situations where the father is unable or unwilling to provide adequately for the needs of his children, an even greater share of the burden of child-rearing is thrust nowadays upon the hard-pressed mother. She then has to provide a larger share of the money as well as the time needed to raise her children. These women who carry on farming and trading activities rely heavily on the services of their children on the farm and in the market place where they engage

in hawking goods along the streets. Women traders may use the services of their children for ten years or more.

There is evidence that motherhood is no longer regarded as an entirely unmixed blessing, especially among those living at the subsistence level where the woman's income is essential to support family life.

With more children going off to school, with more people migrating away from their traditional homes where support from their kin would be provided, how can the overworked mother cope with her many responsibilities? Not only must she continue her income-producing activities in the farm and market place, in the office, hospital or school, but she must take on such heavy, time-consuming household chores as carrying water and firewood, grinding and pounding, along with her frequent burden of pregnancy, nursing and baby and toddler care.

Helpful solutions are possible

A number of new solutions to this crucial problem are being tried to help reduce the present strains and stresses on Ghanaian mothers. One of these is the regulation of family size.

Among educated urban dwellers, many are aware of the problem. They speak out on it and take advantage of the facilities offered by the National Family Planning Programme and the International Planned Parenthood Federation. Both of these organizations are expanding their activities and facilities so that they can reach more people who want their help.

Another helpful solution is to be found in the day-care centre, but this is available mainly in urban areas, and usually the fees are beyond the reach of the poor. There is growing recognition of the need to introduce more day-care centres, nurseries and creches for the children of working mothers.

The solution for more affluent families has been to employ more help in the home. But as minimum wage levels rise and as more and more girls go to school, there will be fewer young women available for hire, and then only to the wealthy few.

If the growing problems of contemporary Ghanaian women are to be more clearly comprehended and documented and their changing activities and aspirations more readily understood, a greater emphasis will have to be placed on basic research both in depth and in breadth among women in all walks of life.

Analysis of data related to the maternal, conjugal, occupational, kin and civic roles of women should enable new policies to be formulated and implemented, which will help to meet the needs of women and their families and help them to continue playing their multiple roles in the home and in the economy. Thus, for instance, if it should be national policy that women continue to play such a vital and energetic role in the economy of Ghana and that the majority should continue to work outside the home, then a new national policy regarding the availability of creches and day-care for all who need them will need to be implemented soon.

The research activities and policy suggestions of the newly formed National Council on Women and Development should achieve some positive action in this direction so that Ghanaian women will find ultimately that their steps into the contemporary world have not been backward ones. ■

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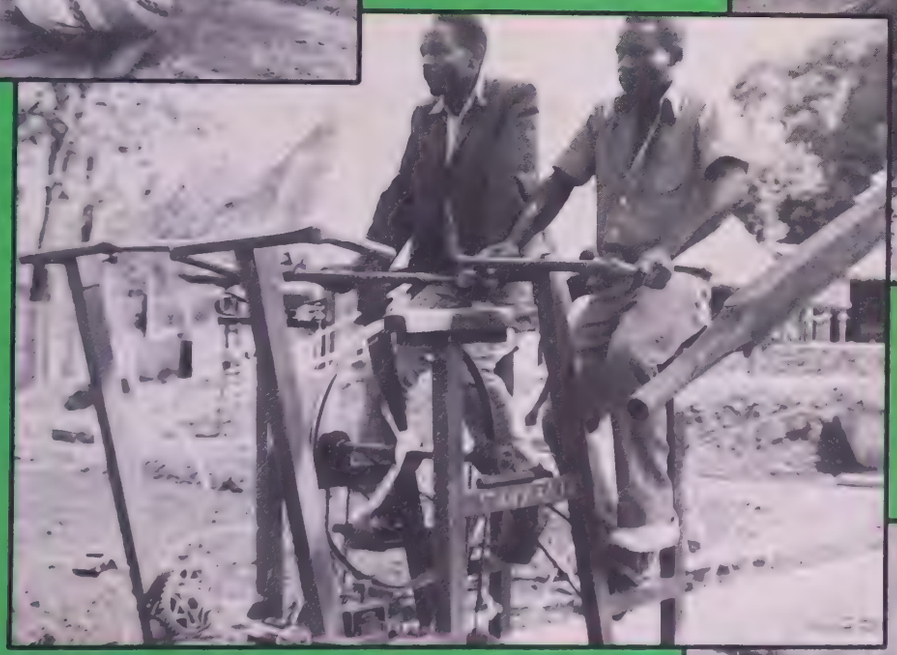

Village Technology

UNICEF NEWS

Special thanks are due to the staff in UNICEF's Nairobi Office, especially to John Balcomb, Jim McDowell and William Campbell for invaluable help in providing overall planning and the articles and photos for this issue.

Issue 90/1976/4
Editor: Miriam Miller
Design: Bernard P. Wolff

P.4 **What's in a Name?** Although village level technology may be called different names, there is general agreement as to what the concept means, according to *John Balcomb,* Chief, Communications and Information Service in UNICEF's Nairobi Office, who provides an overview of the subject.

P.7 **The Human Element: A Talk with Norman Scotney.** Describing himself as a practitioner of "applied anthropology", *Mr. Scotney* stresses the need to first understand and empathize with the people before trying to introduce improved simple technologies at the village level.

P.11 **Sunshine or Darkness?** Deficiency in Vitamin A, which can lead to child blindness, can be prevented by eating green vegetables. *Jim McDowell,* Chief of the Food Technology and Nutrition Section in UNICEF's Eastern African Region, describes how a simple solar dryer can be made which will ensure an adequate supply of fruits and vegetables.

P.14 **Wind to Move Water.** Two windmills have been installed at irrigation farms in Kenya's dry but windy Northeast Province. Freelance writer *Ruth Seitz* points out their benefits as an alternative to diesel pumps which frequently break down and are expensive to repair.

P.16 **A Truly African Green Revolution.** The best approach to improving Africa's food production is to introduce technologies based on traditional systems of farming. Writer *Henry Pelham Burn* describes many ways this can be done.

P.20 **Making Life Easier for Africa's Rural Woman.** *Janet Asare,* a leading authority on nutrition in Ghana, calls for more serious study and thought to be given to relieving women of their many laborious and tedious tasks and to training them to increase their money-earning skills.

P.24 **The Village Technology Unit: Ideas to Revolutionize Rural Life.** The first of its kind in Africa, the Village Technology Unit at Karen, Nairobi, demonstrates over 50 different appropriate technology ideas translated into reality.

P.27 **Technology—In and Out of the Classroom.** A consultant on local development of science equipment, *Keith Warren,* gives examples of how locally available, low-cost or no-cost materials can be transformed into practical benefits.

P.30 **"I'll Buy One".** The story of how to make cement water jars and their importance is told by journalist Michael Dobbs and UNICEF Information Assistant William Campbell.

Cover Photos by Esben H. Thorning. *Top:* ICEF 7391; *left:* ICEF 7379; *right:* ICEF 7399; *center:* ICEF 7392; *bottom right:* ICEF 7390.

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UNICEF News is published four times a year by the UNICEF Information Division, United Nations, New York.

United Nations Children's Fund, United Nations, New York, N. Y. 10017

"Go in search of your people,
Love them,
Learn from them,
Plan with them,
Serve them,
Begin with what they know,
Build on what they have."

How poignantly these few words by an ancient poet convey the true meaning of what village technology is—or should be—all about. Often sophisticated western technology is rejected by local people because it is not appropriate to local conditions or local ways of doing things. The story of a tractor left rusting and abandoned once its initial supply of fuel had run out is probably apocryphal, but it does, nevertheless, serve to illustrate the overall problem.

The essence of village technology is technological simplicity on the small scale that is needed in rural areas. Village technology does not seek to bring about an immediate technological revolution in rural areas. Rather it seeks to introduce small initial changes which are practical, easily possible and which, when taken together, have the potential to bring about significant improvements in the overall quality of rural life, thereby providing a basis for more advanced development.

The term "village technology" does not just represent a collection of labour-saving devices. Its development and implementation require an attitude of mind which says, in effect: "How can we develop our own approach to this problem by using our own ingenuity, our own skills, and the resources which are available to us?" No idea is too "old fashioned" or too "far-fetched" so long as it provides a pragmatic answer to a local need in a manner which is appropriate to local ways of life and local resources.

Interest in the potential of simple, low-cost and indigenously based "appropriate" technologies to accelerate development and improve the quality of life in the rural areas is developing rapidly in a number of countries in eastern Africa.

UNICEF believes that the successful application of these technologies could have a great impact on many problems affecting the welfare of families, and, in particular, the health and well-being of mothers and children, and is therefore anxious to assist governments which may be interested in exploring or pursuing possibilities in this field of development.

With this objective in mind, UNICEF convened an "Eastern African Regional Seminar on Simple Technology For the Rural Family" in Nairobi from 13-18 June 1976. Government representatives, UNICEF staff from various countries of the region, and representatives of U.N. agencies met at that time to discuss the principles, concepts, and techniques involved in the application of technologies appropriate for village and domestic level, and joined together to share experiences and to discuss possibilities for joint action.

A major focus for the Seminar was provided in the form of a Village Technology Demonstration and Development Unit, which was established, with UNICEF assistance, by the Youth Development Division of the Kenya Ministry of Housing and Social Services at their Centre for Research and Training at Karen, Nairobi. This Unit embodies a wide range of full-scale exhibits of appropriate technologies covering: the production, conservation and processing of food, home improvements, building techniques, use of solar and wind energy and the procurement, conservation and protection of water supplies.

In all these areas of village technology, there are immeasurable benefits for children such as better food, better housing conditions, better supplies of safe water. Perhaps most important of all is the lightening of the daily burdens of mothers thereby enabling them to devote more of their time to their children's well-being.

Because of the importance of the Seminar and the enthusiastic response to the Village Technology Demonstration Unit, UNICEF NEWS is devoting most of this issue to the ideas, discussions and papers presented at the Seminar in the hope that they will generate similar interest in other parts of the developing world.

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What's in a name?

John Balcomb

At times it looked as if the seminar held last June at the pleasant venue of Nairobi's Jacaranda Hotel, like so many other seminars, was going to get bogged down in linguistic questions.

"Simple" — "Appropriate" — "Intermediate" — "Village Level". Just what kind of technology were we talking about?

The organizers had christened the week-long meeting "UNICEF Seminar on Simple Technology for the Rural Family". But many of the participants, representing 17 African countries, as well as several different international and voluntary agencies, didn't seem particularly happy with this wording.

More than semantic quibbling

"Simple" had unacceptable connotations to some, suggesting the kind of simplicity exhibited by Simple Simon when he went fishing in his mother's pail. Anyway, it was pointed out, villagers already have simple technologies; the whole point is to help them develop something better.

The alternatives fared little better. "Appropriate" was generally thought to be an apt term, but one that covers too much ground. Helicopters might be appropriate under certain circumstances, and we certainly weren't talking about helicopters.

"Intermediate", a word sanctioned by long usage, was objected to on the grounds that it suggests something second best; "village level", on the grounds that it embraces just the type of primitive, laborious devices one hopes to supplant.

John Balcomb has been Chief of the Communications and Information Service in UNICEF's Nairobi Office since 1973. Before coming to Nairobi he worked for UNICEF in India for six years.

The argument came up again and again to the dismay of the various chairpersons who were presiding. But it eventually became apparent that more than semantic quibbling was involved. The participants were grappling with serious problems of definition, and the right word, the word that might correspond to just what they wanted to say, simply didn't exist.

"We knew what we didn't want"

We all seemed to know the kind of technology we *were not* talking about, the sort of thing we were against. We were against the transfer of *in*appropriate technology, that much was clear, the kind of thing that profits the exporter more than the user. We were *against* techniques and devices that depend on a constant flow of imported spare parts and on increasingly costly fossil fuels and their derivatives. We were against things that couldn't be fixed when they broke down without sending them to a nation's capital or even back to the country of their manufacture.

All of us remembered bad examples: of electric ranges and electric blenders in home economics classes for women who cooked over charcoal at home; of expensive farm machinery developed for capital-intensive agriculture in North America and Europe which was then transplanted to countries where capital was scarce and labour was abundant. We were definitely against this sort of thing. "About time, too," was the general feeling.

"Simple, low-cost, appropriate"

It helped to actually see some of the things we were talking about at the demonstration unit that had been built with UNICEF assistance at the Ministry of Housing and Social Service's Research and Training Centre at Karen, just outside Nairobi. There we saw simple solar dryers for preserving food, granaries built along traditional lines but offering better protection against insects and rodents, cheaply-made cement jars for storing rainwater, as well as a number of improved but still quite simple household devices.

"Simple, low-cost, appropriate: related to tradition and existing practices wherever possible, but improved according to scientific principles." It was difficult to characterize these devices in fewer words.

And what of the home-made hydraulic ram which was on display—a device for lifting water through the energy developed by its own fall along a stream bed? The beauty of the hydraulic ram was that it had been constructed entirely of common pipe fittings at a cost of a few dollars and it was sturdy enough to function for many years without replacing any parts.

It takes some knowledge of physics to understand how a hydraulic ram works however, so it is not all *that* "simple". The operative considerations that make it "appropriate" are that it has no sophisticated parts and it can be installed and maintained by anyone who knows how to fit pipes.

So, with the hydraulic ram, our subject matter was already extended to include virtually anything that is cheap, that can be made from locally available materials, and that can be built or maintained by craftsmen who are within easy reach.

All things considered, simple maintenance and repair are probably the outstanding characteristics of an "appropriate" device or whatever one wants to call it. Everyone who attended the UNICEF seminar was well aware that the cost to a developing country of an overly sophisticated technology is a heavy one, for a whole train of supporting services, skills and parts is required just to keep it functioning.

Lightening women's tasks

One of the stated objectives of the seminar, and an important one, was to promote devices that would reduce the drudgery of women. Nobody questioned the tremendous amount of hard, physical work (more than their fair share, it usually seems to outsiders) which women in rural Africa (and in other areas) perform: carrying water in heavy jars up steep slopes, gathering firewood, cultivating crops, pounding grain, as well as cooking and tending to the house and children.

But should this be called "drudgery"? Someone cited one dictionary's definition of drudgery as "slavish and distasteful work". Was this not overly subjective? How did we know that African women regarded their work as distasteful? Several persons (men, as I recall) spoke of the pleasure that rural women find in socializing while waiting to draw water from distant springs. And it was pointed out that to imply such women's work is slavish could easily be insulting to traditional sensibilities.

A simple idea can bring enormous benefits to women. By fixing gutters along the eaves of houses, it is possible to catch rain water and store it for when it is needed. (ICEF 7378/Campbell)

The general consensus was that "laborious and exhausting work" was a better, and less subjective, way of putting it; and when getting down to brass tacks, it is doubtless better to use more precise and less emotionally laden terms.

More than semantics

In one of the final interventions at the seminar, Mr. A. Quadros of the University of Mozambique objected even to the word "technology". His grounds were interesting and thoughtful. Exaggerating slightly, he began by saying that he had heard twenty-one words used to qualify the thing we were talking about at the seminar (my own count was six). The qualifier he preferred was "basic", meaning "essential to development". Mozambique, he remarked, was dedicated to rural development through self-reliance and had no interest in things that were not "basic" in that sense.

As for "technology", Mr. Quadros said it was a recent word linked to a particular form of modern civilization. He preferred the word "technic", implying not a machine but a human action and skill. Technics have been used at all times by human beings to establish favourable relationships between nature and themselves. Basic technics, he maintained, were what we should aim to improve.

"Basic technics" did not strike a very responsive chord among the group as a whole. The word "technology", even when applied to simple operations and ways of doing things —such as planting beans and maize in alternate rows—seems to be here to stay, for words ending in "-ology" are status symbols in their own right. But Quadros' essential point was well taken, and was raised in other words on different occasions by several other members of the seminar.

Importance of human inventiveness

The point was that we were not talking about gadgets or machines or devices. Too much development assistance has been gadget-based. We were talking about human actions and skills. Appropriate tools and devices are important, to be sure, for man is a tool-making animal, but useful tools and devices have their origin in human inventiveness.

Our message, if any one message came out of the seminar loud and clear, was that means must be found to encourage rural people in developing countries to use their own resources and inventiveness to improve their standards of life, rather than having them depend on the transfer of technologies devised by other people in different circumstances. There is a great deal they can profitably borrow, perhaps—but what is most worth borrowing is more often the approach to a problem rather than the answer.

Semantic discussions are not always fruitless. In my opinion, the semantic discussions at the Nairobi Seminar led to searching consideration of some of the basic matters which concerned us. We did not settle on any one appropriate adjective. Someday we will have to compromise on one of those typically unpronounceable UN acronyms—UNXOTYL or some such—but at least it will signify something. For, as the chairman of the last session said in his final remark, "We all seem to know what we mean, anyway." ■

THE HUMAN ELEMENT

A Talk with Norman Scotney

Norman Scotney describes himself as a practitioner of "applied anthropology". For more than ten years he has worked in various parts of Africa as a consultant to the World Health Organization and other agencies. As a special "resource person" at the Nairobi Seminar on Village Technology, Scotney's job was to see to it that the participants didn't overlook the social and cultural problems that would be encountered in introducing improved simple technologies at the village level.

Outsiders learn from insiders

"What are the attitudes and skills a person needs to induce people living in poor communities to adopt simple tools, machines and other devices to improve their standard of living?" Scotney asks.

"The first, without any doubt, is the ability to understand and empathize with the people with whom one is working. Only when an outsider is able to move towards an insid-

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This article is edited by Victoria Balcomb from discussions with Norman Scotney as well as from the paper he prepared for the UNICEF Seminar on technology held in Nairobi.

To help people accept new ideas to improve their lives, it is first necessary to get to know them. Only when an outsider is able to move towards an insider's view—through listening and talking to the village people—can the outsider hope to make useful suggestions. (ICEF 7380/Thorning)

er's view—through listening to and careful discussion with the village people—can the outsider hope to make useful suggestions.

"I recall a tour I made in western Nigeria, where for years the colonial District Officers had insisted that people dig deep pit latrines at safe distances from their houses. I knew that in some societies incest taboos govern the use of washing and defecating facilities by various members of the family, but I was nevertheless impressed to see three latrines at one house. The only one in use, however, was as a storage place for tools. The people used the bushes. . . . 'There's the sky, there's no smell, and it's our custom,' the woman told me. Several decades of pressure had accomplished little except meaningless and unpleasant work."

One of the devices recommended at the seminar workshop is a fire box which draws smoke through the latrine, eliminating smell and flies, but even this, Scotney explains, doesn't take care of all the problems. In some cultures digging holes is connected with death and misfortune. Also, few people like to go 50 feet away from the house at night just to urinate. It is understandable that villagers may prefer their traditional ways to the "improvement".

Choosing their own water system

One of the major needs in rural Africa is less laborious methods of collecting and storing water, Scotney points out. In certain parts of Africa, people build their houses on the crests of ridges. This tradition derives from the need for security in the old days when tribal warfare and slave-raids were common occurrences, for mud-walled and thatch-roofed houses were difficult to defend and were easily set on fire in a raid. Furthermore, streams and swamps were associated with wild animals and diseases. But this way of living, high above the reliable sources of wa-

The traditional granary is not protected against rodents or dampness. Unfortunately, this allows much of the crop to spoil. (ICEF 7381/Campbell)

ter, means that people—usually women and girls—must spend many laborious hours every day struggling up hillsides with heavy buckets of water for household needs and for animals.

"What can be done about this?" asks Scotney. "There are a number of possibilities: plastic pipes to lead water down from higher ridges; deep boreholes fitted with windmills or animal-powered lifting devices; even aerial ropeways. Rainwater caught from roofs and stored would help. But to recommend the best of these alternatives one must have an intimate knowledge of local circumstances—of the people, their habits, their preferences, their economic patterns."

Help can come from the outside, but in the last analysis, it is up to the local people to choose the kind of improved water system *they* want because the collection of water is such an important part of their daily lives.

"The value of us outsiders," Scotney observes, "is that we can bring to a situation knowledge and experience beyond the local people. But we have only a traveller's acquaintance with the people and their circumstances, and we can easily misjudge what will be acceptable.

Learning from history

"It's important to understand how the people may weigh a change or new idea. If it contributes to one of their goals, especially if the cost in terms of cash and skills is comparatively low, then we might expect that the balance would be weighted in its favour. But if new practices, materials and skills are required, if the overall benefit is likely to be delayed, and if food or security or some other important priority is endangered, then adoption is uncertain.

"Learn from history. The changeover in Africa from the wooden digging stick to the metal hoe was almost instantaneous. The new hoe was used the same way as the old. It was about the same shape and it had a wooden handle. It was cheap, durable, and it was used daily. Is it any wonder," Scotney asks, "that adoption was rapid? Compare its acceptance to the opposition against the terracing practices insisted upon by some colonial administrations. These techniques reduced land slip and erosion, but by altering the soil profile, they made crops uncertain for a few years. Strong resistance was inevitable."

By plastering the straw basket with mud and adding an insect proof spout, it is possible to store the grain and keep it from spoiling. (ICEF 7379/Thorning)

In every village, Scotney reminds us, there are craftsmen whose skills can be modified to work with new materials similar to the traditional ones. Cement has some similarities with mud and clay; plastic pipes can be cut and caulked without requiring unusual new skills.

But rivetting and welding, although related to traditional smithy work, require a greater investment in tools, outside purchases and new skills and, to keep the business going, more cash in the village economy. Electrical equipment and automotive engineering likewise make demands which can rarely be met by one village and which need the support of a large community.

Technology affects relationships

Then too, Scotney emphasizes, we have to remember that technological changes may alter the social fabric and strongly affect people's relationships. Within the family, time-honoured loyalties may be strained.

"Every innovation involves relationships," he explains. "An unmarried girl sometimes buys hair-straightening tongs and combs nowadays. Her boyfriend may favour this while

her father and mother oppose it. Personal conflicts are annoying. Worse, they weaken an institution on which people have traditionally relied for survival in times of hardship. Within the community, old friendships and old systems of power and mutual obligations may be disturbed. Not everyone will be enthusiastic about new ways.

"A good example of political complexities and the 'springs of power' is a situation that developed in Nigeria a while back," Scotney recalls. "To the experts, it was a mystery. They proposed damming a stream just outside the village to provide a year-round water supply which the people could fetch. But the headman demurred. He preferred to wait, possibly for years, until water could be piped directly to households within the village itself.

"Puzzled, the experts investigated and discovered that in the village there were a few private wells strictly controlled by their owners. Then they realized that the headman was holding out for the day when his people would have individual water taps outside their houses and the private well owners would lose their clients. That would mean that the headman and his party would have strengthened their political position."

Technology can pose a threat

Sometimes we forget that those families which are in greatest need of having their physical and economic workloads lightened are living very close to the subsistence level, with few resources to fall back on so they can be seriously threatened by even a temporary setback. Naturally, a person in such a situation is reluctant to take chances and experiment with his means of livelihood. A man worries that if he is made poorer, others will become less dependent on him and less ready to help him if he needs help.

One problem in the adoption of change is the size and nature of the co-operative group needed to implement it, Scotney points out. Some types of co-operation will be expanded, others destroyed. "The switch from subsistence farming to cash cropping, for example, may weaken the traditional cohesiveness that comes from everyone's having a similar life style. Individual effort and gain may lead to conspicuous differences in living standards. A greater number of moveable goods may invite theft. Individualism diminishes trust."

With cash-income agriculture, the community may get together and decide to set up a co-operative society to handle the crops and purchase bulk supplies. Different organizational skills and sentiments are called for from those that prevailed in the old days when the weather decided the day's activities.

"Further complications may arise when the community members find that although they have the financial means to improve their community, they don't have the time themselves to do the work. So, instead of everyone getting out there himself to dig trenches and lay the new water pipes, the community has to raise funds, by soliciting donations or assessing taxes, to hire the labourers."

Helping the disadvantaged

In short, Scotney says, "Life styles, beliefs, priorities, skills, materials, resources, patterns of co-operation, openness to innovations—all these must be included in our appraisal of a situation and must be examined for clues to changes which the people will find feasible and beneficial.

"The capable change agent must have the confidence of both his colleagues and the people in the village. The more sincere the responses to his suggestions are, the more certain he can be that he is building a team. He can be sure he is making progress when people express their doubts to him."

Initially, Scotney feels, improved village technology will tend to benefit "the slightly better off" rural people who are in a favourable position to adopt useful new ideas. "The innovations will spread, but the process can be slow." Accordingly, we should make a deliberate effort to give the most assistance to remote and disadvantaged families and communities. Suitably assisted, they can use the assets that are theirs—their skills, their lands, their herds, their ingenuity, and their co-operative traditions—to build a better life for themselves.

"To focus attention on meeting the special needs of these groups requires that we ourselves be ready to adopt new methods and innovative approaches. The three stones of the traditional African housewife's fire have a long history. Let's hope that a better village level technology is knocking at the door —but it cannot be imposed from the outside. If the people themselves make the decisions, they will gain valuable experience even if things don't always work out as planned." ■

Sunshine or Darkness

Jim McDowell

"Every day children lose their eyesight—often shortly after measles—because they are deficient in Vitamin A", writes an opthomologist in a large urban hospital in East Africa in seeking UNICEF's help. UNICEF supplies high-dosage capsules of Vitamin A which help to prevent blindness.

But what of the many children who, in the rural areas often far from medical services, also become malnourished and may go blind? How can they too be reached, and how can we prevent them from facing a life of lonely darkness?

Night blindness—the first warning

Vitamin A is the "eyesight" vitamin. If the body does not get enough of it, the first symptom is "night-blindness"—the inability to see in dim light. This causes problems for schoolchildren trying to study in poorly-lit homes. The most serious problem, however, comes when there is severe deficiency which leads to scarring and eventual softening and perforation of the eyeball—and permanent blindness. This often follows measles infection in children who are deficient in Vitamin A.

India's Prime Minister, Indira Gandhi, pointed to one remedy when she addressed the Indian Association of Physicians in 1976. She said: "Doctors know that green vegetables, even leaves, make all the difference between vision and blindness. But rural people and many in the cities are not aware of such elementary facts."

Teaching the use of local foods which are rich sources of Vitamin A is of vital importance, but such technology, by itself, is useless unless these foods can be made available readily and cheaply.

There is no real overall scarcity of Vitamin A foods in most African countries. They are produced during the growing season in such profusion that often 50 to 70 per cent of the highly perishable fruits and vegetables is lost through spoilage and damage on the

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Jim McDowell, UNICEF Programme Officer, and Chief of the Food Technology and Nutrition Section, UNICEF's Eastern Africa Region, writes from practical experience of work at grass-roots level in rural Africa. He and his colleagues designed and built the village-level solar dryer and worked out the method for shaded sun drying described in this article.

way to markets. This results in a situation where the producer cannot get a reasonable return for much of the crop, prices are high and quality is low in urban markets, and for much of the year, these foods are virtually unobtainable by the urban poor.

Village technology and Vitamin A

The problem, thus, boils down to one of conserving and transporting this food—a problem which can be tackled by appropriate and low-cost village technology.

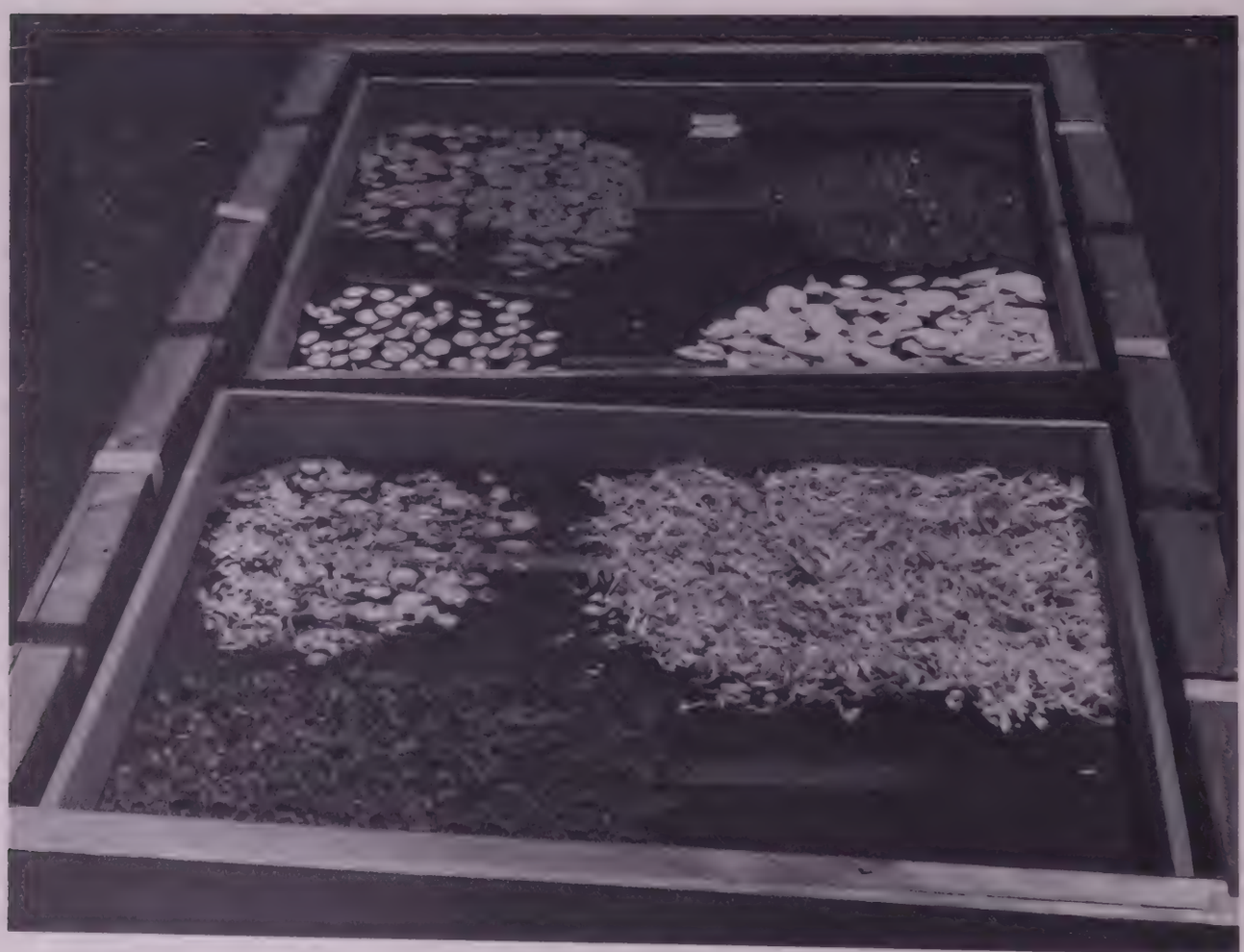
Sun drying is the appropriate technology. A simple type of enclosed dryer can be constructed of low-cost or no-cost materials for an outlay of about US $2. It can dry up to 60 kilos of green vegetables per day.

This type of dryer consists of a box made of mud brick or mud and wattle about 8 ft. long, 4 ft. wide and 1 ft. deep. Built directly on the ground in a sunny location, it is covered with a lid of clear polythene sheeting on a simple pole or bamboo frame and has air holes at the base and at the top.

When the sun shines into this box, its heat is trapped, and the temperature of the air inside the box rises to 70° or 80° centigrade. The food is placed on simply-woven open-work reed or basket-work trays inside the dryer. As hot moist air rises from the drying food to escape through the upper air holes, fresh air enters below the food so that the food is constantly surrounded by a stream of moving hot air. Using this method, green vegetables are dried completely in two to three hours.

A most important point is that the vegetables must not be exposed to *direct* sunlight, since this would destroy quite a lot of Vitamin A. When drying Vitamin-A foods, a simple shade made of reeds, stretched hessian or cloth, or a sheet of metal is supported over the drying tray. This does not interfere with drying since, in the enclosed dryer, the process of drying is accomplished by the sun-heated air rather than by the direct sunlight itself.

It is not possible to dry vegetables *and* retain useful amounts of Vitamin A simply by spreading them in the open sunlight. Drying must be accomplished rapidly and in the shade. Fortunately, the enclosed solar dryer



Deficiency in Vitamin A can lead to blindness in many children. This can be prevented by eating green vegetables which supply the necessary Vitamin A. Unfortunately, highly perishable fruits and vegetables spoil quickly. But this simply built solar dryer can help to solve the problem by drying the vegetables so they can be preserved for use over long periods. (ICEF 7382/Thorning)

provides simply applied, fully appropriate and low-cost technology.

Dried dark green vegetables, particularly cassava leaves and cow-pea leaves, yield very concentrated doses of Vitamin A. Only one-third of an ounce of dried cassava leaves or half an ounce of dried cow-pea leaves will provide a child's daily requirement.

The bonus: protein and iron

It has to be borne in mind that these dried vegetables are not only a good source of Vitamin A, but that they also provide protein and iron. One ounce can provide one-third of a young child's daily iron requirement and up to one quarter of his daily protein needs. These foods are also very valuable for expectant and nursing mothers who often suffer from deficiencies of iron, protein, and Vitamin A which can affect not only their health but that of the unborn or nursing infant.

Thus, one simple village technology—sun-drying—provides the basis for another village technology: the home preparation of necessary nutritious foods for mothers and children.

The benefits of producing dehydrated vegetables by sun-drying need not be limited to the rural home. Dried vegetables are only one-third to one-fourth of the weight of raw vegetables and, most important, they will not perish during transport and marketing. This opens up the possibility of making these valuable foods available all year round and of moving them easily from one area to another, so that supplies could be available constantly and at low cost in urban markets.

The beauty of it all is that this village technology uses only sunlight and local foods which would otherwise go to waste—and uses them to produce, at virtually no cost, foods with nutritional value which is beyond price.

Use of the good African sunlight in this way can help more children to enjoy that light. It is good to feel the warmth of the morning sunshine on closed eyelids and to be able to open those eyelids to the sights, colours and excitement of a bright new day. ■

The solar dryer, constructed mainly of no-cost materials, can dry up to 60 kilos of green vegetables per day. The food is placed on simply woven trays and then covered by a lid of clear polythene sheeting. Since the vegetables must not be exposed to *direct* sunlight, a simple shade made of reeds, stretched hessian or cloth is placed over the drying tray. (ICEF 7383/Thorning)

Wind to move water

Ruth Seitz

"Why not harness this wind to work for us?" quipped an official in Kenya's Ministry of Agriculture one day, losing his words in a 40-mile-an-hour gust.

Since then two windmills have been installed at irrigation farms in Kenya's dry but windy Northeast Province. Farming there is dependent on water from the muddy Tana River. The Ministry of Agriculture introduced the windmills as an alternative to diesel pumps, which frequently break down and are expensive to repair.

Both of these windmills are now benefitting Kenyan Somalis who left nomadic herding for farming. After a severe drought in 1970 had stripped them of their livestock, they were forced to rely on famine relief. Two years later, twenty-five families from Garissa began farming co-operatively along the Tana River. Their new livelihood was a success. For instance, one acre of cantaloupes yielded 10,000 pounds, which sold for almost US $2,000.

That started an agricultural boom. Bananas, tomatoes, onions, maize, eggplant and cantaloupes flourished year round—except when the pumps broke.

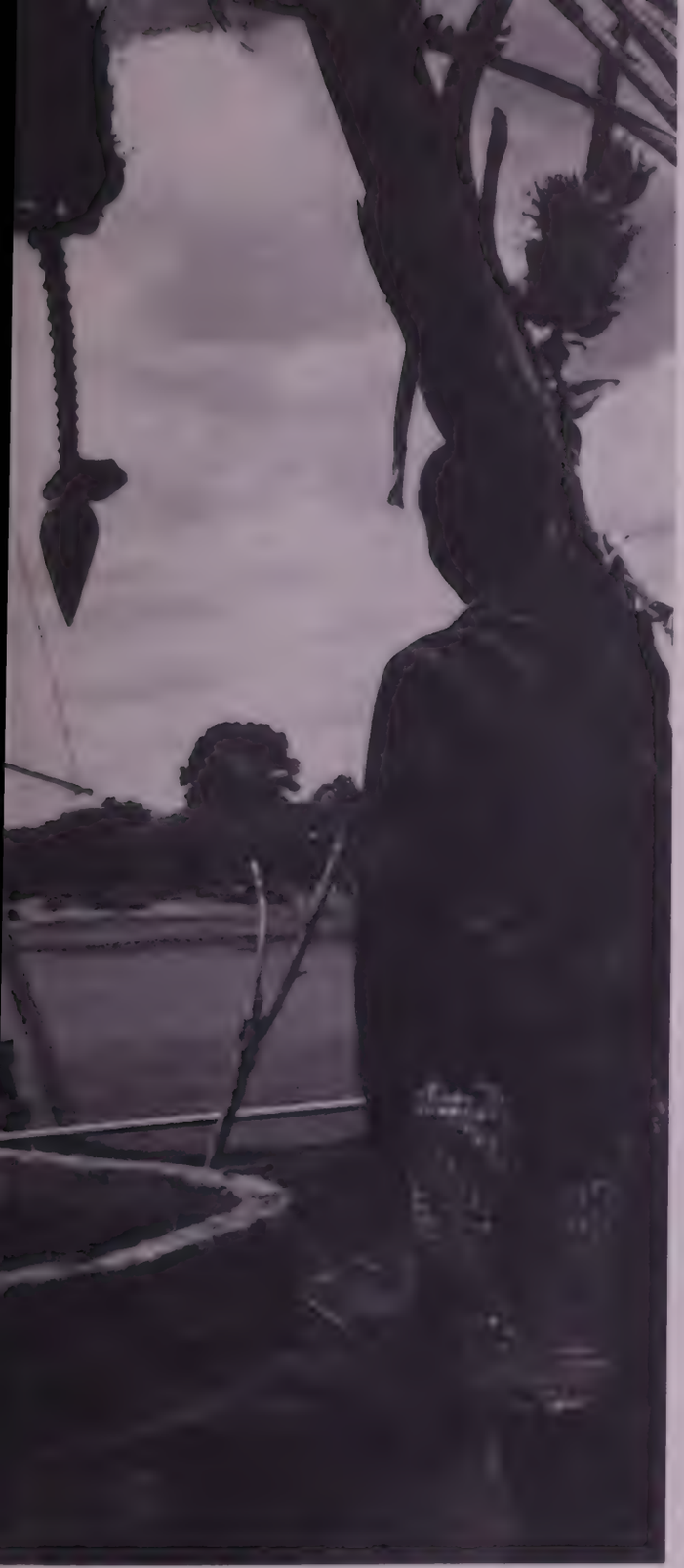
"Reverting to a more simple mechanism, one that uses a limitless natural resource, is a step forward," claims A. M. Bereki, Provincial Crops Officer.

A free-lance writer who has lived in Eastern Africa for several years, Ruth Seitz is especially interested in exploring all aspects of development.

Putting the first windmill to work

As a Ministry of Agriculture experiment, a metal-sail windmill began operating at Garissa's first co-operative in March. Designed by David Hilton of the University of Nairobi, it was constructed by the Christian Industrial Training Centre in Nairobi, with a grant from Kenya's National Christian Council. Guided by a metal tail, its four corrugated iron blades are joined by bamboo supports which move according to the wind's direction and speed.

Initially, this first windmill along the Tana had six sails, but Garissa's winds were too



In Kenya's dry but windy Northeast Province, two windmills have been installed to provide power for water pumps. This sailcloth windmill effectively irrigates up to three acres. (ICEF 7384/Blair Seitz)

strong. Power increases as the cube of the wind velocity, so the power in a 20-mile-an-hour wind is eight times that in a 10-mile-an-hour wind.

This windmill fills a 1,000 gallon cement tank with well water in 45 minutes. The 75 families who are presently in the Garissa co-operative rely on this clean water for domestic purposes, and the tank also irrigates two acres of date palms. The windmill cost US $975.

Seeking less expensive windmills

Aware that this windmill costs too much for private farmers, Steve Elzinga, an agricultural economist with the Kenya Government, arranged for the erection of a sailcloth windmill on Hussein Gure's ten-acre farm. Used traditionally in Crete, this windmill only costs US $574, and it effectively irrigates up to three acres. Its six-foot triangular sails silently catch the breeze and transfer the motion along an extending rod to an off-center wheel which operates a pump.

"Many people come to see my windmill," says Gure proudly. "It hasn't needed any repairs since it started going."

But even a Cretan windmill was too expensive for Abdi Omar, a new Somali farmer who wanted to leave the co-operative and cultivate his own plot of land. Omar needed an inexpensive device, perhaps hand-operated, to bring river water up a 15-foot bank and onto the land.

His solution was a *shadoof,* a four-gallon bucket counter-poised on a long pivoted pole by a bundle of sticks tied to the other end. The materials totaled US $52.

Standing on a wooden platform, a *shadoof* operator drops the bucket into the crocodile-infested river, then lifts it with help from the weight and tosses its contents into the main irrigation ditch. That takes two seconds.

Every other evening, eight men work for six hours, taking turns as *shadoof* operators on Omar's farm. When he was questioned about this back-breaking work, Omar replied, "This isn't work; this is money."

And so it is. Omar's farm supports twenty of his relatives. Most of the cantaloupe profits—US $518.75 from the August crop alone—go into savings. "I want to add to my farm and buy a windmill," explains Omar. "A *shadoof* can only irrigate one acre."

In the meantime, Omar is in demand as a *shadoof*-builder. "Abdi Omar's technology has changed things for the poor farmer," commented Elzinga. "An appropriate technology is springing up from within."

Capturing the wind to move water onto the land is still a novelty in Garissa, a place where farming is only four years old. Supporting the appropriate technology which windmills demonstrate, Dr. H. K. Mwangi, Provincial Director of Agriculture, says, "When farmers control their own machinery, they feel pride." ■

A TRULY AFRICAN GREEN REVOLU

Henry Pelham Burn

It is on record that a British missionary bishop who went out to Africa bent on "teaching the natives how to farm" found that they knew better than himself. This was one hundred years ago, but, sad to tell, the lesson has still not sunk in. A different sort of missionary, preaching the gospel of the marvels of foreign agricultural methods, has been abroad in the land converting African farmers.

"Luckily," said one convert-turned-preacher who recently admitted to backsliding, "not too many listened to our advice."

The fact is that despite the flurry of activity and advice since World War II, malnutrition among African children seems to be on the increase. The reasons for this are complex. They include climbing birth rates, drought, parasitic infection, the trend away from food crops to cash crops, the effects of "modernization" on family eating patterns, and even the disruption of long-standing social customs.

But part of the answer lies in attitudes towards food production and, as Africa depends mostly on her small farmers for sustenance, it is on them that the problem must devolve.

The importance of traditional methods

In the words of Aston Manyindo, UNICEF's Regional Food Programme Officer in East Africa, "A stage has been reached where these nations can either go ahead with 'improved' techniques from other countries, or take a closer look at traditional methods." This could apply to Africa as a whole, and there is a growing body of experts coming to the conclusion that, after years of the force-

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Henry Pelham Burn is a free-lance journalist who has lived in and travelled extensively throughout Africa.

Burning the bush and clearing the land is one of the modern methods being used by Zambian farmers. (ICEF 7385/Thorning)

ON: Blending old traditions and new technology

feeding approach, option two is the more workable one.

With modern pressures making time no longer on Africa's side, farmers cannot be left to a leisurely assimilation of the new ways, nor is thrusting them down their throats doing any good.

Aston Manyindo speaks for a growing number when he says, "As far as food production is concerned, technologies must be based on traditional systems of farming."

He goes on. "For each pocket of the complex environment within a region, there has been a slow evolution of crops, types of livestock, cultural practices and traditions. These appear to be the basic materials of improvement. Their values need to be discovered, understood and built upon; their weaknesses or irrelevances to changed conditions gradually eliminated. The farmer himself, his social background, his traditional methods and his true needs are all worthy of the most careful attention and study."

Age-old mixed cropping

The hallmark of traditional African agriculture is mixed cropping or intercropping—the growing of two or more simultaneous or overlapping crops on the same piece of land in the same season. Experts have been taking a closer look at why farmers cling to this age-old system so tenaciously. Several reasons stand out.

The farmer with a hoe and a small bit of land and perhaps a limited supply of water is looking for a maximum return on a minimum amount of labour. Given a suitable environment, intercropping can provide this by saving space and time, and it can make for a productive operation. The farmer is in control of the situation and can plant, weed and harvest on the spur of the moment as weather and

The hallmark of traditional African agriculture is mixed cropping—growing two or more crops on the same land. (Photo: UN/FAO/ Greenwood)

labour availability allow.

One of the most common mixed cropping systems involves planting grain legumes, such as cow-pea or groundnuts, under cereals such as sorghum, millet or maize. In fact, it is thought that cow-pea may have come from its supposed home in Ethiopia to the West African semi-arid zone as part of such a cereal-legume farming system.

Eliminating insects, improving soil

Instead of triggering an expensive chemical war on insects and disease, this cropping system utilizes an ecological balance between a farmer and his environment. Conventional wisdom tells the farmer that certain crop combinations help to control certain insect pests. This lessens the risk of whole fields being wiped out—an ever present danger with single crop stands.

Another way to control pests is by changing the crop combinations and the plant density, thus modifying the micro-climate by producing varying amounts of shade and light. Fast growing crops like beans are also used to smother weeds effectively.

Longer periods of ground cover help conserve the soil by protecting it from water and wind erosion and the blazing sun.

The soil holds its fertility through nitrogen-fixation by legumes, root excretions, root feeding at different levels and over different periods of time. Deep-rooting pigeon pea and shallow-rooting finger millet complement each other in this way. And planting can easily be adapted to changing soil conditions in a form of crop rotation.

From a nutritional point of view, intercropping helps ensure a continuous supply of varied foods over several months to meet energy and protein requirements. Given adequate storage, this could be extended all year round.

Finally, peasant farmers are at home with the system and are capable of handling it economically.

Change should be gradual

Researchers in different parts of Africa have had little trouble establishing the benefits of mixed cropping over monoculture, at least for the small farmer who grows so much of the continent's food. There is the growing feeling that by gradually introducing more advanced technology into an already prevalent system of agriculture, the change will be less dramatic and therefore more acceptable.

The problem is that with conditions so different from one place to the other, research conducted in one area cannot necessarily be applied in another. Moreover, in the words of D. W. Norman of the Institute for Agricultural Research at Nigeria's Ahmadu Bello University, "the test of relevancy of a cropping system goes far beyond that of adapting it to the physical environment, to one embracing in addition adaption to the human environment."

In his opinion, "analysis of the former determines whether or not the cropping pattern can *technically* be grown while analysis of the latter will determine whether or not it will *actually* be grown." Few people have accepted the challenge of defining relevancy in both physical and human terms, he feels. But this may be the key to the whole business.

Norman bases his conclusions on a survey he made under practical farming conditions of factors influencing the types of cropping systems in two areas in northern Nigeria.

Need for interdisciplinary approach

Trevor Chandler, agricultural programme officer for Africa of the International Development Research Centre (IDRC), agrees with Norman. The Canadian-based IDRC has financed much of the best intercropping research on the continent. But, says Chandler, "the interdisciplinary team approach is still missing, combining the sociological and economic aspects along with the agricultural."

Intercropping, being "location-specific", needs a vast body of research to provide farmers with enough alternatives and choices to fit their particular needs. All of this is expensive, especially when so little is known about African crops like millet compared with maize, wheat or barley. Unfortunately, it takes a change in government priorities for research funding priorities to change. In Kenya, for instance, very little money is being spent on development of crops like bullrush millet which do well in semi-arid areas, whereas in Botswana, where even the best agricultural land is poor by Kenyan standards, some solid work on such crops is underway.

A lot of emphasis is being put on cassava research by the IDRC. Their project in Zanzibar, where cassava is a major food crop, is run on the principle that in Africa, research in

agronomy can be done perfectly well by non-PhD's given appropriate methodology. But with cassava, as with sorghum and millet, it is hard to justify the inputs needed to produce high yields, until some sort of marketing system is developed. IDRC's Botswana project for milling and selling sorghum as a convenience food in flour form is an example of what is possible. The people in Botswana originally ate sorghum, but they switched to imported maize from South Africa sold at subsidized rates.

In a few cases there is an established international market to take advantage of. Ironically, Indonesia ships cassava chips to Europe for animal feed, while East Africa, where cassava grows well in many areas, imports animal feed *from* Europe.

Food crops versus cash crops

At the moment there is little incentive for most farmers to invest in growing indigenous crops beyond home needs. One hears the valid complaint that "Governments set up marketing boards for wheat and maize but you don't catch politicians making speeches about growing the new variety of pigeon pea." Yet given an incentive, it is amazing how quickly farmers will shift production.

Money has always been more plentiful for cash-crop than for food crop development. But there seems no good reason for perpetuating the colonial-inspired distinction between food crops and cash crops. Nowadays every peasant farmer in Africa needs cash, and food crops should be considered cash crops. Incidentally, in the last few years, kwashiorkor—a serious malnutrition disease which affects children—has appeared in districts where it was unknown before, coinciding with a shift from growing yams, bananas and so on to cash crops like tea or sugar, usually with official encouragement. The drive for foreign exchange is officially justified by the need to import fertilizer and machinery to produce more food. But the peasant seems to be the loser.

Combining old and new

Other indigenous practices worth learning from are:

—burning land to destroy weed seeds and to help sterilize the soil and produce ash rich in the calcium and phosphate which certain crops need;

Soil erosion is one of many complex factors causing increased malnutrition among African children. (ICEF 7386/Thorning)

—ridge cultivation to protect soil from erosion and to enrich it by incorporating weeds and crop residues into new ridges;

—use of farmyard manure and compost;

—carrying out simple seed germination tests before planting to check on seed quality;

—adjustment of planting times, to take full advantage of rain;

—use of "rogueing" to control insects and disease. This means pulling up and burning plants as soon as infection appears.

The hope is that, eventually, intercropping and other indigenous methods of cultivation will mesh with scientific principles to form an appropriate agricultural technology, spawning a truly African green revolution. ■

Making life easier for Africa's rural woman

Janet Asare

In West Africa, about 80 per cent of the people live in the rural areas where they depend on subsistence farming for their existence. This is also where 80-90 per cent of the female labour force live and work. Life in the rural areas is hard and sometimes unproductive when compared with the amount of effort put into it. The standard of living is low and about 80 per cent of the people are illiterates without formal education or systematic training.

Women's many tasks

The more time-consuming and laborious activities of women throughout Africa include fetching water, farming, grinding grain, gathering firewood, and the preparation of food.

. . . Fetching water

It is a most common sight when travelling in rural areas to see women and children carrying clay water pots or buckets or any available containers on their heads, walking many kilometres, far away from their villages, to fetch water from rivers, streams and muddy ponds.

Though the West African countries have national policies to supply clean water to all of their peoples, it will take some years before this can be achieved. In the meantime, women need some help in reducing this drudgery. More convenient, lighter-weight containers would help. And it disturbs me to see how much rain water is allowed to fall to waste with no attempt made to catch the water. All it requires is fixing iron sheet gutters along the eaves of houses to catch the water into tanks.

. . . Farming

Women in West Africa do about 60-80 per cent of the farm work. They prepare the soil, plant and transplant the seeds. Transplanting paddy rice seedlings necessitates long hours standing knee deep in water and bent over double. Though this may be good for the rice, it certainly is injurious to the health of the planters.

Janet Asare is a Ghanaian who for many years played a prominent role in her country's development activities for youth and women. She has carried out many assignments for FAO in other countries of western Africa and is a leading authority on nutrition and home extension.

In West Africa about 80 per cent of the people live in rural areas where life is very hard, especially for women. Among their many tasks are fetching water, farming, grinding grain, gathering firewood and preparing food. (ICEF 7387/Thorning)

Mechanization is sometimes introduced in preparing the plots, but this is a prerogative of the men. Where women are concerned, their workload is increased as the acreage of the rice farm increases, resulting in more work for the sowers, planters and weeders. But women and children are still using only the old traditional tools for harvesting.

Simple hand-operated cultivators, ridgers, and seed-planters have been developed in West Africa which could reduce the drudgery of farm work considerably if they would be made available to more people.

. . . Pounding grains

One of the most harrowing and tedious activities of all women in West Africa, urban or rural, is the pounding of grains for the family meal. The most common chore is the pounding of "fufu", which consists of boiled starchy tubers of fruits such as cassava, yam, cocoyam or green plantain into a pulpy consistency. Fufu is served with the famous West African palmnut soup or groundnut soup. There are certain regions of Ghana where the people like their "fufu and soup" morning, noon and night.

A West African company, Agrico Engineers, is in the process of developing a pounder that should lighten women's work considerably in the future. Recently, the Ghana Food Research Institute prepared instant fufu precooked powders and selected a panel to taste them. The busy career/housewives hailed it as a boon for women. The conservatives declared it didn't taste like the pounded one. As yet, no

follow-up action has been taken.

For the grinding of grains, there are uncomplicated grinding mills which are becoming popular even in villages. These are motor operated, and housewives and children can now carry their maize or millet or rice to be milled for a small fee. For villagers in remote areas, it should be made easier to purchase one, either on a co-operative basis, or with a loan from the Agricultural Development Bank. The smaller hand operated mills could be used by women to grind the peppers and other vegetables which they put in their stews and soups. These also could be operated on a co-operative basis to serve various sections of the community.

. . . Fetching firewood

The laborious and tedious work of fetching firewood is another chore undertaken by women. It is a common sight to see women—and children—walking miles to the forest or scrubland or savannah plains looking for firewood to cut into portable sizes to carry home. Usually their only tools are the cutlass and sometimes the hatchet or axe and ropes. A whole day may be spent on this expedition.

Serious study and thought must be given to relieving women of this chore or lessening it. There are a number of things that could be done:

—reforestation of certain areas with fast growing trees to supply firewood;

—organizing the youth into clubs to do the cutting down of the firewood with saws, chopping into sizeable lengths and selling at a low cost;

—making suitable tools available to women at a low cost which can do the work at half the time and energy.

. . . Preparing food

In Africa, a woman's cardinal role set for her by tradition is to cook and feed her family, children, husband and extended family too. Preparation of food is often very laborious. The African man expects his food to be cooked exactly the way his mother used to prepare it for him. So the woman, who has been well coached to do everything in her power to please her man, must go to all

The most common chore is the pounding of "fufu", which consists of boiled starchy tubers of fruits such as cassava, yam, cocoyam or green plantain into a pulpy consistency. (ICEF 7388/Thorning)

lengths, spending hours near the hot open smoky fire, concocting special dishes for him. No thought is given to the amount of work involved: a lot of pounding, grinding, chopping firewood with an axe, bending, peeling of starchy vegetables such as yam, cassava, or some hard stirring of thick porridges over the fire. Nor is much thought given to the kind of kitchen in which she cooks the family's meals and the type of utensils she uses.

The traditional 3-stone fireplace or 3 point mud stove in the centre or corner of the compound during the dry season and under a roof during the rainy season, is still largely used in most rural areas in West Africa, varying slightly from region to region. This type still engulfs the cook in clouds of wood smoke, making her eyes water, her nose run and her clothes smell of smoke all the time.

. . . Preserving food

Drying, smoking and salting are other tasks performed by rural women to preserve foods. Wet food will invariably be dried on the ground—on tarmac roads if they live near trunk roads. This is very injurious to health because the food gets mixed up with animal droppings and other undesirable matter; and yet a lot of the dried preserved foods sold in the markets to the public have been dried this way. Drying racks are easy to make with sticks from the bush or built with bricks. The new convex shaped racks are more hygienic and make the foods dry faster because of the way the racks are built to attract as much sunshine as possible.

A higher priority for women

The contribution rural women make towards development is enormous and, consequently, they deserve a higher priority in national development planning. At the very least they should have the benefits of training programmes, co-operatives and the application of intermediate technology to raise woman's social and economic position. Special emphasis should be given to training aimed at increasing women's money-earning skills. This, in turn, will enable them to feed their children and families better, and also provide them with some of the necessary things of life which they lack. ■

A smokeless cooking stove made of mud is one of many simple village technology improvements which are making life easier for the rural woman who can cook indoors without filling her hut with smoke. (ICEF 7389/Thorning)

THE VILLAGE

TECHNOLOGY UNIT

"Ideas to Revolutionize Rural Life"

The first of its kind in Africa, the Village Technology Unit at Karen, in Kenya's capital, Nairobi, was developed as a joint endeavour between UNICEF and the Kenya Village Polytechnic programme. The unit brings together a diverse range of technologies all of which have *one* thing in common: they can be applied at low cost, using locally available materials, and they are designed to offer appropriate solutions to some of the problems which face the low-income families of Eastern Africa.

Kenya's Housing and Social Services Minister, Taaitta Toweett, said at the opening of the Unit, "Instead of abandoning our traditional technology, we must enrich it with ideas and experiences from other parts of the globe."

This is, basically, what the Unit sets out to do.

The Unit demonstrates over fifty different appropriate technology ideas translated into reality. It uses only materials and skills likely to be available to low-income rural families. The emphasis is on more and better food, more and better water supplies, and a healthier home environment.

Making more and better foods

A demonstration garden focuses on nutritious local foods and how to grow them using compost from household wastes.

The storage of food is a high priority, since more than 30 per cent of Africa's food goes to waste after harvest. By improving the traditional type of home granary made of mud bricks, and a village-scale 2½-ton granary made of concrete staves, both rodent-proof

Left: **Solar reflective cooker that boils water fast. (ICEF 7390/Campbell)**

Right: **Windmill and water pump on display at the Nairobi Technology unit. (ICEF 7391/Thorning)**

and insect-proof, spoilage can be prevented.

The storage "package" is completed by a solar crop and food drier made of mud bricks, for which the only external input is a polythene sheet cover costing $1.50.

An oil press, simple winnowers, maize and groundnut shellers, grain mills, and an exhibit showing how sun-dried vegetables and grains can be combined to make really nutritious foods, demonstrate many practical ideas for labour-saving and effective food use.

Improving the home

The home improvements exhibit shows a wide range of simple improvements including: a mud-built smokeless cooking stove, a hot-box cooker, fly-proof food storage, a "refrigerator" in which water evaporating from charcoal produces cooling, and, most important, an improved pit-latrine with a built-in smoke-box which allows daily fumigation with burning grass to eliminate flies and odours.

Simple water technology exhibits range community-scale windmills to a simple pot home filter in which alternate laye charcoal and gravel produce sparkling, clean water.

A range of low-cost hand pumps from ferent parts of the world stand besid bicycle-driven irrigation pump and a si "chain" pump which lifts 10 gallons of w per minute from a shallow well.

Possibilities for home storage of water lected from roofs embrace simply-m cement storage jars (the idea came f Thailand) costing US $1.00 for a 70-gallon or US $10.00 for a 700-gallon jar.

The focus of the Village Technology Un on rural self-reliance and, as Mr. Toweett it, "on ideas which will revolutionize rural in the forseeable future."

A two-man bicycle-driven irrigation pump. (ICEF 7392/Thorning)

Technology– In and out of the classroom

Keith Warren

Unfortunately, education is so often, and in all countries, a prisoner of its past. But in a small way, education in school is beginning to turn from its preoccupation with subjects treated abstractly, such as conventional science and geography, towards matters which will more directly help young citizens to handle their futures. And one of these matters is technology.

In my work, largely in South Central Asia, I have seen many examples of people's ingenuity in making the most out of what they have—which is really what simple village technology is all about. With a little encouragement, knowledge and outside help, many more young people and adults could be taught—in and out of the classroom—how to use locally available, low-cost or no-cost materials and transform them into practical benefits in their day-to-day lives.

Take the example of bamboo, a locally-available material in many areas which can easily be used to produce low-lift pumps—

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In a patch of sunlight under a tree at a teacher training institute in Bangladesh, a teacher demonstrates how a cleaned-out electric light bulb half-full of water will magnify four times. He also shows how sunlight focussed on the glass can cause an object under it to burn. (ICEF 7393/Warren)

Bamboo tube with one open end and small hole through blank end, with cloth-wrapped stick pushed in, makes a Holi festival water pump. (ICEF 7394/Warren)

A length of stick, two yards of string, some leaves and balls of clay make a weighing balance—a basic science experience for children. (ICEF 7396/Warren)

the kind of pump needed in Bangladesh, for example. UNICEF is providing iron pumps but many more are needed. Now if one takes a look at the bamboo squirter that Bangladeshi children make for the Holi water and colour festival—it is halfway to being a real pump. With a little more development it can become a workable pump, easily made and readily available.

Think of the winds of Nepal, full of power, blowing over the backs of women bent over to do their grinding. This wind can be harnessed to provide badly needed sources of power and energy.

Think of the half kilowatt of hot sun beating down on the little girl who spends all day gathering meagre sticks for tomorrow's family cooking. The sun's rays can be captured and transformed into a solar cooker. (There is enough aluminum sheet in a Bangladesh rickshaw to make a solar cooker.)

These are but a few examples of the kind

of potential resources to be found in almost every part of the developing world. And it is not necessary to revolutionize educational systems in order to introduce a few simple technology lessons into the curriculum.

Just imagine how life would be improved if every young adult could make only three things by the time he reached 20: a solar cooker, dung and compost fertilizer, and a pump—all from local resources.

But the possibilities should not be exaggerated. Some areas may have no aluminum or cigarette foil for a solar cooker, or trash for compost, or water within bamboo pump depth. And how much progress can there be without enough trained teachers? The best answer lies in making the goals realistic and modest and using all possible human and physical resources in the community.

The few examples of simple village technology shown in the photographs could be applied anywhere in the world. ■

A solar heater made with clay smoothed into a concave shape in a tray of woven bamboo and covered with pieces of cigarette foil. (ICEF 7395/Warren)

How to make a simple hammer: a few photo illustrations and a simple Hindi text provide the instruction. (ICEF 7397/Warren)

"I'LL BUY ONE"

Michael Dobbs and William Campbell

"These cement water jars are a lot cheaper than the metal ones on sale in Nairobi, and we can make them here at the farmers co-op," Arap Maina told a large group of curious farmers who had gathered to inspect the first cement water jar ever constructed in rural Kenya.

"All we have to do is fill this cloth bag with grass and cover it with two layers of cement. When it dries you pull out the grass and bag and you have a good water container," Maina continued, as the farmers pressed for a closer look at the jar.

So the idea of the cement water jar, after a long trip from its home in Thailand, finally landed in Africa. Arap Maina, a farmers' co-op leader, had discovered the jar as it sat in transit at the UNICEF Village Technology Unit near Nairobi, and he took the plans for it back to his friends at the Manaret farmers' scheme in the rolling hills near Sotik in western Kenya.

For over an hour Arap Maina held 100 farmers captive with talk of how the cement jar was made and how they could benefit from its use.

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"How much is that one?" an old farmer yelled from the crowd while pointing to the demonstration jar. "I'll buy one."

The farmers at Manaret had every reason to be interested in the idea of an inexpensive water jar. Although the green hills on which

Arap Maina, a farmers' co-op leader, tells a group of curious farmers how to make a cement water jar and how it can benefit them. (ICEF 7398/Campbell)

ney farm get plenty of rain, the rainwater goes
o waste because it is not collected. This is
onic since water is still one of the major
roblems in the daily life of the people.

Women must collect water

Even as the men talked, their wives and children were collecting water from a river over a mile away. And when the afternoon rain began to fall, the meeting broke up and everyone crowded onto the porch of the co-op office to watch hundreds of gallons of water pour off the tin roof and turn to mud on the ground.

"We should try to collect water from our roofs," Maina told the crowd. "And with the price of these cement jars everybody should be able to afford one."

"Why should I make one when my wife collects all the water I need," a young farmer replied with a grin. "If we get our water from the roof, what will she do all day?"

In Manaret, there is more to the water jar than simple economics. For generations the farmers have seen their wives make two trips each day to collect the family water supply. The men took this for granted as the most efficient use of their wives' available resources. Indeed, for many, the most appropriate water technology has been, and still is —women.

The water jar gains acceptance

But Maina and the water jar have set some of the men, old and young, thinking about new ways. "If I could get water from my roof, my wife could spend more time in the garden and with the children," an old man remarked. "I'd like to try to build one after the maize harvest."

"I predict a lot of farmers will build them if they are made to look nice," the area chief said. "Everyone here uses mud, and cement is one step up. But the idea will take a lot of time to catch on. The people must see it really works before they will cut a single blade of grass to fill one of the bags."

A week after the first meeting, some of the men rolled the jar from the co-op office to the small hut which serves as the women's handicraft centre, setting it up under the twisted gutters of a small section of tin roof. Four hours later, they sat under the leaky porch and watched as the afternoon rain filled the jar with 40 gallons of fresh water.

The next morning, Richard, who usually collects water for his house, had filled his plastic bucket and was back inside in ten minutes.

"I like it," Grace, the lady of the house, told her husband. "It looks nice, it works, and it stays right here!" ■

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